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TRANSPORT OF DANGEROUS GOODS
Ninth session
(Geneva, November - December 1976)

REPORT OF THE COMMITTEE OF EXPERTS ON ITS NINTH SESSION
(29 November-8 December 1976)

Contents

	Paragraphs
ADOPTION OF AGENDA	3
ELECTION OF CHAIRMAN	4
RESOLUTIONS 1973, 1974 AND 1975 (LIX) ADOPTED BY THE ECONOMIC AND SOCIAL COUNCIL	5 - 15
(a) Resolution 1973 (LIX)	5
International convention on the transport of dangerous goods	6 - 12
Representation on the various bodies concerned	13
Membership of the Committee	14
(b) Resolutions 1974 (LIX) and 1975 (LIX)	15
ACTIVITIES OF INTERNATIONAL ORGANIZATIONS CONCERNED WITH THE DRAFTING OF REGULATIONS OR RECOMMENDATIONS ON THE TRANSPORT OF DANGEROUS GOODS AT THE INTERNATIONAL LEVEL	16 - 22
STRUCTURE AND FORMAT OF THE RECOMMENDATIONS	23 - 27
LISTING AND CLASSIFICATION OF SUBSTANCES AND ARTICLES	28 - 52
(a) Study of the sections of the report of the Group of Experts on Explosives (sixteenth session) dealing with the listing and classification of dangerous goods	28 - 32

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Contents (continued)

	Paragraphs
(b) Listing and classification other than in Class 1	33 - 52
Definition of classes in the light of environmental criteria	33 - 35
Precedence of hazard characteristics	36 - 39
Information sheet for new substances to be listed	40 - 41
Listing of new substances and amendments to lists	42 - 51
Listing of substances for a particular mode of transport only	52
PACKING OF DANGEROUS GOODS	53 - 92
(a) Study of the sections of the report of the Group of Experts on Explosives (sixteenth session) dealing with packing questions	53 - 57
(b) Study of the reports of the Group of Rapporteurs on its seventeenth, eighteenth and nineteenth sessions	58 - 92
Grouping of dangerous goods for packing purposes by degree of danger	58 - 71
Packaging tests and marking	72 - 80
Multimodal tank-containers	81 - 84
Gas cylinders	85 - 87
Reference temperatures for the filling of receptacles	88 - 90
Intermediate bulk containers (IBCs)	91
Unit loads	92
ORGANIC PEROXIDES	93 - 101
HAZARD INFORMATION SYSTEM (HIS)	102 - 137
LABELLING	138 - 140
APPROVAL OF AND COMMENTS ON THE RESPECTIVE REPORTS OF THE GROUP OF EXPERTS ON EXPLOSIVES AND THE GROUP OF RAPPORTEURS	141
FUTURE WORK AND CALENDAR OF MEETINGS	142 - 149
FILM SHOW	150
TRIBUTE TO MR. BYRD	151 - 152

Contents (continued)

Annex 1 - Scope of the recommendations

Annex 2 - List of dangerous goods most commonly carried

Annex 3 - Special provisions relating to individual substances and articles

Annex 4 - Special recommendations relating to Class 1

Annex 5 - Special recommendations relating to Class 5

Annex 6 - Special recommendations relating to Division 6.1

Annex 7 - General recommendations on packing

Annex 8 - Special recommendations on packing for Class 1

Annex 9 - Special recommendations on packing for Division 5.2

Annex 10 - Recommendations on consignment procedures

Annex 11 - Recommendations on the Hazard Information System (HIS)

Annex 12 - Hazard Information System (HIS) - derivation of abbreviated code

Annex 13 - Information sheet for new substances to be added to the United Nations lists

REPORT

1. The Committee of Experts on the Transport of Dangerous Goods held its ninth session from 29 November to 8 December 1976. The session was attended by experts appointed by the following countries: Canada; France; Germany, Federal Republic of; Iraq; Italy; Norway; Poland; Thailand; Union of Soviet Socialist Republics; United Kingdom; United States of America. The following organizations were represented by observers, who took part in the work of the Committee in an advisory capacity: World Health Organization (WHO), International Civil Aviation Organization (ICAO), Universal Postal Union (UPU), Inter-Governmental Maritime Consultative Organization (IMCO), Central Commission for the Navigation of the Rhine (CCNR), Central Office for International Railway Transport (OCTI), International Chamber of Commerce (ICC), International Organization for Standardization (ISO), International Air Transport Association (IATA), International Road Transport Union (IRU) and International Chamber of Shipping (ICS). In addition, representatives of the European Council of Chemical Manufacturers' Federations (CEFIC) were consulted when items of direct concern to their organization were under consideration, and representatives of the Syndicat Européen des Fûts en Acier (SEFA) and of the International Committee of Steel Drum Reconditioners were invited by the Committee to express their views when the proposed tests on steel drums were being considered.

2. An expert from the Netherlands was invited by the Committee to take part in the work of the session as an observer.

ADOPTION OF AGENDA

3. The Committee adopted the provisional agenda submitted by the Secretariat (E/CN.2/CONF.5/R.583) and agreed on the order of discussion of the various items on the basis of proposals by the expert from the United Kingdom (E/CN.2/CONF.5/R.605), it being understood that, at the request of the representative of ISO, the Chairman of the ISO Technical Committee on Gas Cylinders would be invited to make a statement on 2 December 1976.

ELECTION OF CHAIRMAN

4. On the proposal of the expert from Canada, supported by the experts from the Federal Republic of Germany, the United States of America, Poland and the Union of Soviet Socialist Republics, Mr. L. Spencer (United Kingdom) was elected Chairman.

RESOLUTIONS 1973, 1974 AND 1975 (LIX) ADOPTED BY THE ECONOMIC AND SOCIAL COUNCIL

(a) Resolution 1973 (LIX)

5. After taking note of resolution 1973 (LIX), the Committee gave particular attention to the operative paragraph referring to the drafting of an international convention on the transport of dangerous goods by all modes of transport.

International convention on the transport of dangerous goods

6. The Chairman observed that the matter had been the subject of preliminary discussions at the seventeenth, eighteenth and nineteenth sessions of the Group of Rapporteurs (E/CN.2/CONF.5/58, paras. 143-144; E/CN.2/CONF.5/59, paras. 126-134; and E/CN.2/CONF.5/62, paras. 79-88), and that the Committee

had been instructed by the Economic and Social Council to study the possibility of drafting an international convention on the transport of dangerous goods by all modes of transport and to report the results of its study to the Council (resolution 1973 (LIX), para. 2).

7. The communication from the Government of Italy (E/CN.2/CONF.5/L.598) related to the several aspects of the matter and thus gave the experts an opportunity to express their views on the question as a whole. The expert from France said that the late distribution of the document had prevented him from seeking instructions from his Government on a subject that went beyond mere technicalities.

8. In the discussion, most of the experts favoured the study of an international convention for all modes of transport and expressed their views on what such a convention should contain.

9. Opinions differed, however, on the time-table to be followed; some experts thought that the work should be put in hand without delay, while others considered that it would be better to wait until the Recommendations had been brought to a more advanced stage.

10. Other questions were raised, some relating to the fact that agreements already existed and others to the effect which the proposed study would have on the progress of the Committee's work, but the difficulties mentioned were not thought to be insuperable.

11. In addition the view was expressed that a convention should not be put into force until the existing regulations had been brought more into line with the Recommendations, so as to prevent conflicts from arising between the regulations and the convention.

12. At the end of the discussion, the Committee noted that the topics enumerated by the Rapporteur from the United States of America in the statement recorded in paragraph 129 of the report of the Group of Rapporteurs on its eighteenth session (E/CN.2/CONF.5/59) covered the whole of the problem. It therefore considered that its opinion should be expressed in the form of answers to those various points, as follows:

(a) The Committee considered that the study of an international convention on the transport of dangerous goods by all modes of transport was desirable. Such a convention would relate to questions common to all modes of transport, to the exclusion of those that concerned one particular mode only; the latter category would be governed by the existing regulations.

(b) Technical matters, dealt with in annexes open to amendment by an appropriate procedure, would relate to the listing and definition of classes, the classification of dangerous goods, their packing and labelling, consignment procedures, multimodal tank transport, and the Hazard Information System (HIS), i.e. to all the matters dealt with in the Recommendations.

(c) The Committee did not consider itself qualified to make proposals as to what body should be responsible for drawing up the convention. Responsibility for preparing the technical provisions of the draft convention might be assumed by the Committee's Group of Rapporteurs or by a representative ad hoc body. With regard to the first possibility, the attention of the Council was drawn to the fact that the resources at present available for the functioning of the Committee and its subsidiary bodies would be insufficient for such a task.

(d) With the scope of the convention remaining to be defined and without information about future arrangements and the resources that would have to be set aside for the preparatory work, the Committee was unable to make specific proposals as to how long the work would take. It took the view that the Group of Rapporteurs might consider that question in the light of the Council's decision, and also that the work should proceed at a rate that was fairly brisk but nevertheless enabled questions to be gone into thoroughly.

Representation on the various bodies concerned

13. The Committee took note of the paragraph of the resolution in which the Council requested Governments and the organizations concerned to support the efforts of the Committee at the international and at the regional or subregional levels.

Membership of the Committee

14. In the matter of its membership, the Committee welcomed the experts from Iraq and Thailand, who were taking part in its work for the first time.

(b) Resolutions 1974 (LIX) and 1975 (LIX)

15. The Committee took note of these two resolutions.

ACTIVITIES OF INTERNATIONAL ORGANIZATIONS CONCERNED WITH THE DRAFTING OF REGULATIONS OR RECOMMENDATIONS ON THE TRANSPORT OF DANGEROUS GOODS AT THE INTERNATIONAL LEVEL

16. The Committee heard with interest a statement by the representative of CCNR to the effect that ADNR had been revised, in particular to take protection of the environment into account, and that the revised version would enter into force on 1 January 1977.

17. The ICAO representative announced that the Council of ICAO had decided on 6 June 1976 to set up a panel on the carriage of dangerous goods by air.

18. The purpose of the panel was to establish standards and recommended practices on at least the following points: classification, limitation of quantities carried, packing, handling, labelling, liability of shippers and operators, and crew training.

19. The standards and recommended practices would be based on the Committee's Recommendations and on the International Atomic Energy Agency (IAEA) Regulations for the Safe Transport of Radioactive Materials.

20. A three-week session would be held at Montreal in January 1977 with the possibility of two more sessions during that year.

21. In addition the ICAO representativ drew attention to the desirability of the Committee's Recommendations keeping pace with technical progress, for early availability to organizations dealing with questions concerning the carriage of dangerous goods.

22. The Committee thanked the representative of ICAO for his statement. ICAO's decision to base its work on the Committee's Recommendations was bound to encourage the Committee in its own work.

STRUCTURE AND FORMAT OF THE RECOMMENDATIONS

23. The participants in the work of the session had received the new edition of the Recommendations (ST/SG/AC.10/1) in a format embodying the general points agreed by the Committee at its previous session (E/CN.2/CONF.5/57, para. 137) and the detailed proposals discussed by the Group of Rapporteurs at its eighteenth session (E/CN.2/CONF.5/R.48 and E/CN.2/CONF.5/58, paras. 136-137).

24. Since the new edition reflected the situation existing at the end of the Committee's previous session (December 1974), and in view of the relatively large number of amendments which would be adopted at the present session, as appeared from the consolidated document E/CN.2/CONF.5/R.500 prepared by the Secretariat, the Committee considered that a supplement would have to be published very soon. It took note of the financial implications of publication in English, French, Russian and Spanish, i.e. $1,500 for the preparation of the text, $7,000 for translation and $16,340 for printing, making a total of $24,840. These costs would be covered without additional funds because the number of pages in the main volume had turned out to be smaller than expected, by an amount equivalent to the number of pages in the future supplement.

25. The Committee invited the experts to inform the Secretariat by 15 February 1977 of any errors they might find in the new edition, so that the necessary corrections could be included in a supplement. In cases of doubt, the Secretariat would seek a ruling from the Chairman.

26. The Committee considered document E/CN.2/CONF.5/R.500, containing comments arising from the reprinting of the Recommendations. A long discussion took place on the desirability of reviewing the entire text when the new edition had only just been published. The Committee felt it would be more appropriate if in future any reported defects were rectified in the Group of Rapporteurs, if necessary with the help of a small working group, since in most cases questions of form and of substance seemed difficult to separate.

27. The expert from the Union of Soviet Socialist Republics said that, although the proposals he had made in document E/CN.2/CONF.5/R.811 were out of date, as they related to a document already published, it would be useful for them to be studied by an editorial body and then by the Group of Rapporteurs at its next session.

LISTING AND CLASSIFICATION OF SUBSTANCES AND ARTICLES

(a) Study of the sections of the report of the Group of Experts on Explosives (sixteenth session) dealing with the listing and classification of dangerous goods

28. The Chairman of the Group of Experts on Explosives reviewed the work accomplished by the end of the Group's sixteenth session and stated what, in his Group's view, were the tasks that should be included in the Committee's programme of work for 1977 and 1978.

29. The revised definition of Class 1 and the new classification code were adopted by the Committee (E/CN.2/CONF.5/61, annexes 1 and 2) (see annexes 1 and 2 to the present report).

30. After making certain amendments to document E/CN.2/CONF.5/61/Amend.1, the Committee adopted in their entirety the proposals made by the Group of Experts with regard to classification and the description of particular substances and articles (E/CN.2/CONF.5/61, annexes 3 and 4) and certain other amendments (E/CN.2/CONF.5/61, annex 6) (see annexes 3, 4 and 1 to the present report).

31. During the consideration of this agenda item, special attention was called to water-wetted explosives, a category whose position will be reviewed by the Group of Experts at a forthcoming session.

32. The Committee noted that the revision of the classification in the light of the test criteria would be considered at the next session of the Group of Experts.

(b) Listing and classification other than in Class 1

Definition of classes in the light of environmental criteria

33. The Committee took note of the Secretariat's contacts with the Executive Director of the United Nations Environment Programme (UNEP) and with the secretariat of the Organisation for Economic Co-operation and Development (OECD).

34. The Committee approved the proposal by the Group of Rapporteurs that polychlorinated biphenyls (PCBs) should be placed in Class 9, packing group III. Some experts pointed out that the labelling problem was still completely unsolved and that the entire question of the carriage of pollutants which were below the toxicity threshold should be examined.

35. The Committee invited the Group of Rapporteurs to review the matter as a whole, particularly in the light of the proposals contained in document E/CN.2/CONF.5/R.498, which the expert from Canada would be supplementing with a view to their consideration at the session of the Group of Rapporteurs to be held in August 1977.

Precedence of hazard characteristics

36. The expert from the United Kingdom explained why he had reviewed the table given in document E/CN.2/CONF.5/62, annex 3, and had submitted a revised table (E/CN.2/CONF.5/R.606) for consideration by the Committee.

37. In view of the complexity of the problems raised and the implications of the proposed solutions as regards classification, the Committee appointed a small group to report back on it.

38. The Committee approved the results of the group's work and decided to incorporate them in annex I to the present report.

39. The expert from the Federal Republic of Germany said that, in his opinion, the table of precedence of hazard characteristics should be placed in chapter 4 (instead of chapter 1, as decided by the Committee).

Information sheet for new substances to be listed

40. The expert from the United Kingdom submitted a proposal in a conference-room paper for a revised information sheet designed to facilitate data reading.

41. The Committee confirmed the use of the information sheet requested by the Group of Rapporteurs (E/CN.2/CONF.5/58, annex 3) (see annex II to the present report), the United Kingdom expert having withdrawn his proposal for the model information sheet suggested in the conference-room paper.

Listing of new substances and amendments to lists

42. The Committee approved without change the proposals made by the Group of Rapporteurs in documents E/CN.2/CONF.5/58, annex 1, and E/CN.2/CONF.5/59, annex 2 (see annex I to the present report).

43. It approved the proposals in document E/CN.2/CONF.5/60, annex 4, subject to the following amendments (see annex I to the present report):

- In item 2600, the text between brackets reading "(See ...)" and "Compressed or liquefied gases, vapour, inflammable, n.o.s." were deleted.
- In item 2601A, the subsidiary risk should read "8" instead of "8.1".
- Item 2608 was assigned to packing group III instead of packing group II.
- Item 2609 was assigned to division 6.1, packing group III, without any subsidiary risk.

- Item 2613 was deleted from the list.

- In item 2617, "65°C" should be replaced by "60 .5°C".

- Item 2625 was deleted since the substances in question are already indexed, with a reference to item 1477.

- After a long discussion, it was agreed that item 2630 should be left as it was and that items 2631 - 2641 should be deleted from the list, but that the substances in question should be indexed with a reference to item 2630.

- Item 2646 was assigned to packing group I.

- A proposal to delete items 2648, 2649 and 2661 from the list prompted the Committee to take up the case of tear-gas substances. The Committee requested the Group of Rapporteurs to study the question of the identification of those substances. The Committee agreed to place an asterisk alongside the entry "II" in the first column of the table in paragraph 6.4. of the Recommendations (ST/SG/AC.10/1, p. 179) and to add the following footnote to the table: "*/ Tear-gas substances are included in this group even if the data relating to them do not correspond to the values shown.". Items 2648, 2649 and 2661 were left as they stood.

- Item 2651 was assigned to packing group III.

- Items 2652 and 2654 were deleted from the list; the substances in question will be indexed with a reference to item 2575.

- Item 2656 was assigned to packing group III.

- Item 2658 was supplemented by the word "non-pyrophoric". The subsidiary risk for pyrophoric selenium metal will be considered by the Group of Rapporteurs.

- Items 2663 and 2665 were deleted from the list.

- The designation for item 2671 was recorded as follows: "Aminopyridines (o-, m-, p-)".

- Item 2672 was worded as follows by analogy with the wording of items 1305 and 2733: "Ammonia solutions having a density (specific gravity) between 0.880 and 0.957 at 15°C, in water, containing more than 10 per cent and not more than 35 per cent ammonia". The substance remains in Class 8, packing group III.

- Item 2690 should begin: "N-n ...".

- Items 2694 - 2697, 2700 and 2703 were deleted from the list; the substances in question will be indexed with a reference to item 2693.

- Items 2702, 2705 and 2706 are to remain as separate items and the references are to be deleted.

- Item 2721 was deleted.

- The designation for item 2729 should read: "Alkylamines and polyamines, flash-point below 23°C and boiling-point above 65°C but not more than 260°C, n.o.s.".

- The designation for item 2730 should read: "Alkylamines and polyamines, flash-point above 23°C and boiling-point above 65°C but not more than 260°C, n.o.s.".

- the designation for item 2735 should read: "Alkylamines and polyamines, flash-point 32°C or above and boiling-point more than 200°C, n.o.s.". The entry "polyamines" in the index will refer to items 2733, 2734 and 2735.

- Item 2736 was deleted because of duplication (see item 2671).

- Item 2739 was assigned to division 6.1, packing group II.

- The footnote to items 2742 - 2744 and 2746 - 2748 was deleted. These items are to remain as separate items. Item 2747 was assigned to packing group III and the subsidiary risk deleted.

- Item 2753 should begin: "n- ...".

- Item 2754 should begin "N- ...".

44. With regard to amendments to existing items, the amendment proposed by the Group of Rapporteurs for item 1737 was not adopted.

45. Concerning the Committee's decision to delete items 2631 - 2641 as separate items and refer the substances in question to a general item, and similar decisions concerning other items, such as 2662 and 2664, the expert from the Union of Soviet Socialist Republics said that, in his opinion, every substance should have its own number, otherwise in the end the list of substances would be unwarrantably shortened with no gain in safety. Furthermore, the grouping of several substances under an expanded designation deprived the item number of some of its value, because several of the substances covered by the designation might have different properties.

46. It was also pointed out that item 2479 appeared in the Recommendations although it had been deleted at the Committee's preceding session. The Secretariat will make the correction when the Supplement is published. The Committee instructed the Group of Rapporteurs to review the whole question of isocyanates.

47. The Committee considered a series of proposals submitted to it in documents E/CN.2/CONF.5/R.447 and Add.1, R.594, R.607 and R.612.

48. It approved, subject to amendments, the proposals in documents E/CN.2/CONF.5/R.447 and Add.1 concerning the classification of pesticides (see annex 2 to the present report).

49. The expert from Canada observed that oral rules existed and were followed for classification purposes, and he felt it desirable that the experts should put forward suggestions enabling those rules to be codified. The Committee so agreed.

50. The Committee adopted the proposal made by the expert from France and contained in document E/CN.2/CONF.5/R.594 (see annex 2 to the present report).

51. The proposals put forward by the expert from the United Kingdom in document E/CN.2/CONF.5/R.612 will be considered by the Group of Rapporteurs, as will the proposals submitted by the Government of the Netherlands in document E/CN.2/CONF.5/R.607.

Listing of substances for a particular mode of transport only

52. The position of the Group of Rapporteurs was approved by the Committee (E/CN.2/CONF.5/52, para. 26).

PACKING OF DANGEROUS GOODS

(a) Study of the sections of the report of the Group of Experts on Explosives (sixteenth session) dealing with packing questions

53. The packing questions dealt with by the Group of Experts were the subject of the second part of the statement by its Chairman.

54. The Committee approved the revision of the packing sheets as indicated in document E/CN.2/CONF.5/L.445/Add.1, now incorporated in the Recommendations (ST/SG/AC.10/1), and the amendments to those sheets shown in annex 5 to the Group's report on its sixteenth session (E/CN.2/CONF.5/61) (see annex 6 to the present report).

55. The Committee approved the Group's proposal that paragraph 9.62 of the Recommendations should be supplemented by the text appearing in document E/CN.2/CONF.5/61, annex 6, point (5) (see annex 7 to the present report). It invited the Group of Rapporteurs to consider at its next session the possibility of applying the provision in question to all Classes.

56. The Committee also approved the Group's proposals regarding its programme of work (E/CN.2/CONF.5/61, para. 38).

57. At the end of the discussion, the expert from the Union of Soviet Socialist Republics requested that the proposals appearing in document E/CN.2/CONF.5/L.411, annex A, should be considered at the next session of the Group of Experts on Explosives.

(b) Study of the reports of the Group of Rapporteurs on its seventeenth, eighteenth and nineteenth sessions

Grouping of dangerous goods for packing purposes by degree of danger

Class 3. Inflammable liquids

58. The Committee approved the proposals put forward by the Group of Rapporteurs in document E/CN.2/CONF.5/59, annex 2 (see annex 5 to the present report).

59. It adopted the addition proposed by the expert from the Union of Soviet Socialist Republics concerning standards for tests to determine the flash-points of inflammable liquids, and the addition proposed by the expert from the United States of America on the same subject (see annex 5 to the present report).

Division 6.1 - Poisonous (toxic) substances

66. The question was addressed by the representative of the United Kingdom in regard to the criteria for precise classification. Since the Committee has adopted those criteria without reservation, he suggested that the question could be discussed both in the sub-committee.

67. In the opinion of another delegation, poisons were to be found in all categories, and therefore part of the problem was that of safety. The question might usefully be put to the next session of the sub-committee in those terms.

68. [illegible] ... [illegible] ... [illegible] ...

68. The Committee then considered WHO's study on facilitation and safety in the international transfer of infectious materials. The Committee successively took up three questions at the request of the WHO representative: the transmission of the entire text (excluding the label) to the Group of Rapporteurs for detailed consideration; authorization for the Group of Rapporteurs to publish the results of its consideration of the subject without awaiting the Committee's next session; and the label to be adopted.

69. On the first point, the Committee adopted the suggestion of the WHO representative. The Group of Rapporteurs was invited to consider the matter at its next session.

70. With regard to the second question, the Committee adopted a middle course. The Group of Rapporteurs was authorized to publish its conclusions on a provisional basis. They will be transmitted by the Secretariat to those members of the Committee who do not participate in the work of the Group of Rapporteurs. The Secretariat will communicate the conclusions to WHO together with observations received from the Committee's members (experts and organizations concerned).

71. On the question of the label, the Committee decided to approve the label proposed by the Group of Rapporteurs (E/CN.2/CONF.5/58, annex 3) with the following changes:

- the symbol and wording will be black (on a white ground);
- the bottom part of the label should bear the words "[illegible]", which are optional, and also the words, likewise optional, "in case of damage or leakage immediately notify public health authority".

The model label and the recommended inscriptions are shown in annex IC to the present report.

Packaging tests and marking

72. The Committee approved the new version of the packing recommendations (E/CN.2/CONF.5/L.445/Add.1) and noted that it had been incorporated in the new edition of the Recommendations (ST/SG/AC.10/1).

73. The Committee also approved the further proposals by the Group of Rapporteurs concerning the stacking test for plastics drums (E/CN.2/CONF.5/58, annex 3); plastics jerricans (E/CN.2/CONF.5/62, annex 5); and the correction of the inconsistencies which had been found in the Recommendations concerning the height of drop for slack-type barrels (E/CN.2/CONF.5/59, annex 5).

74. The proposals concerning testing of the water resistance of the outer surface of fibreboard packagings were put aside, however, pending the consideration of certain values, a task which the Group of Rapporteurs was invited to continue.

75. The proposal by the Group of Rapporteurs to delete the word "heat" from paragraph 5.11 of the recommendations was agreed to by the meeting, which then considered the working proposal made by the expert from the United States of America (ST/SG/AC.10/C.3/L.[illegible]).

76. After a discussion in which the representatives of [illegible] and the International Committee of Tank Wagon Associations took part, the Committee decided to adopt the text proposed by the expert from the United States of America, which differed from the earlier proposal submitted by the Group of Rapporteurs by the suppression of the words "the United Kingdom [illegible]". The text is reproduced in annex I to the present report.

77. The expert from the United States of America drew the Committee's attention to the problem concerning the practical application of this text.

78. Proposals by the expert from the United States of America were discussed during the session and adopted as a new paragraph 5.13 (see annex I to the present report).

79. The Committee also considered a confirmation-of-approval proposal submitted by the expert from the United Kingdom, proposing a certain procedure for obtaining approval. This proposal was not adopted, as it was considered premature at the nineteenth session of the Group of Rapporteurs. The Committee further considered a communication by the observer from the International [illegible] concerning the question which had been put to the Rapporteurs when they had considered a proposal by the Rapporteur from the United Kingdom concerning a penetration test ([illegible] para. 67).

80. After a discussion in which these two questions were dealt with together, the Committee agreed to request the Group of Rapporteurs to consider them at a forthcoming session.

Multimodal tank-containers

81. The report of the informal meeting held at The Hague ([illegible]) was introduced by the expert from the Netherlands who had been present at it. The Committee thanked him for having organized the meeting.

82. After briefly considering the question, the Committee invited the Group of Rapporteurs to study the report on the meeting.

83. Pending the conclusions reached with regard to the report, the proposals made by the Group of Rapporteurs since the Committee's last session will not be published ([illegible], annex I and [illegible], annex I).

84. The expert from France said that the French representative who had participated in the working group in question had mentioned to him on his return that he had inadvertently omitted to draw the group's attention to the way in which tank-containers used for the carriage of toxic or corrosive substances might be affected by the abandonment of the concept of calculation pressure in favour of that of test pressure. If care were not taken, these containers might, depending upon the test pressure figure prescribed for each substance, come within the scope of certain national regulations applicable to pressure equipment, such as the mining regulations in France and the regulations of the Technischer Überwachungsverein (TÜV) in the Federal Republic of Germany.

Gas cylinders

85. The Committee took stock of the question with the assistance of the Chairman of ISO Technical Committee No. 58, who explained in broad outline the contents of document E/CN.2/CONF.5/R.597, submitted by his Organization. During his statement he announced that he would be submitting a communication for the meeting scheduled to begin in London on 28 February 1977. The communication would reach the secretariat by 31 December 1976 so that it could be translated and circulated for consideration prior to that meeting.

86. The Committee thanked the Chairman of the ISO Committee for his participation in the discussion on the agenda item.

87. The expert from the United Kingdom invited ISO to send a representative to the London meeting, which was being organized under his Government's auspices.

Reference temperatures for the filling of receptacles

88. The Committee considered the proposal by the Group of Rapporteurs confirming the temperature of 65°C prescribed in the Recommendations (E/CN.2/CONF.5/59, para. 14).

89. The Committee noted that paragraph 9.18 applied to receptacles, whereas the proposal by the Group of Rapporteurs related to tank-containers, and that the reference temperature for the latter should therefore be included in the "Filling ratios" section, paragraphs 12.77 to 12.84.

90. The Committee invited the Group of Rapporteurs to study the problem of the filling temperature for tank-containers. The values prescribed in the last line of paragraph 9.18 were amended by the Committee to read: "0.75 kg/cm² (11 lb/sq.in.)".

Intermediate bulk containers (IBCs)

91. The Committee invited the Group of Rapporteurs to continue its study of this question.

Unit loads

92. The Committee invited the Group of Rapporteurs to continue its consideration of this subject.

ORGANIC PEROXIDES

93. The Committee approved the proposals adopted by the Group of Rapporteurs at its seventeenth, eighteenth and nineteenth sessions (E/CN.2/CONF.5/58, paras. 62-74 and annex 4; E/CN.2/CONF.5/59, paras. 56-64 and annex 4; E/CN.2/CONF.5/62, para. 66).

94. The Committee had before it the report of the informal group which had met in London in October 1977 to consider certain questions relating to organic peroxides (S/CONF./SC.10/WP.[illegible]), and the proposal submitted by the expert from the United Kingdom (S/CONF./SC.10/WP.[illegible]). Document S/CONF./SC.10/WP. circulated for technical reasons before its approval by all the participants in the London meeting, had earlier been reviewed by a small working group, which had made some recommendations that were read out at the meeting. (The working paper is reproduced under the symbol S/CONF./SC.10/WP.[illegible]/Rev.1).

95. The expert from the United Kingdom, speaking as chairman of the small group which had met in London, gave a general outline of the working paper (S/CONF./SC.10/WP.[illegible]).

96. The main problem before the group had been to define objective criteria to govern the question of organic peroxides in packages. The group had accordingly taken the view that chemical substances might best be dealt with in their containers, but it had been aware of the difficulty of referring to the definition in the R.I.D. Packaging, which had been found incompatible with the provisions drafted by the Group of Experts and reproduced in document S/CONF./SC.10/WP.[illegible], Annex [illegible]. The question was still open. Speaking as the United Kingdom expert the chairman of the small group said that in his view a new paragraph might be added to the list of materials given in chapter 11 of the Recommendations; it described the packaging needed, in working which the Secretariat has reproduced as document S/CONF./SC.10/ under number P.39. The group had also sought a solution to the problem of carrying packages in full loads, freight containers or similar items. Proposals are given in Annex A to document S/CONF./SC.10/WP.[illegible]/Rev.[illegible].

97. The Chairman of the small group then explained some minor proposals, reproduced in document S/CONF./SC.10/WP.[illegible]/Rev.1, annex [illegible].

98. In conclusion he said that UN 3, as proposed, had been found inapplicable for organic peroxides. The small group had revised part of its report to that subject (item 5(a)).

99. After discussing in detail the various questions concerning Annex A and of each of the sections listed in annexes A to C, the Committee adopted the texts reproduced in annex I to the present report.

100. The expert from the United Kingdom next explained that his proposals in document S/CONF./SC.10/WP.[illegible] were intended, first, to provide additional general information to be given to carriers and, secondly, to expand the present section on controlled-temperature requirements. He did not ask for those matters to be considered during the session, but drew the Committee's attention to problems which would have to be solved in the near future.

101. After hearing the views set out in the expert's statement, the Committee requested the Group of Rapporteurs to consider at its next session what changes should be made in the controlled-temperature requirements in the light of the final temperatures suggested by the expert from the United Kingdom.

HAZARD INVOLVED IN [illegible] (Item 5)

102. The Committee had before it annex 1 to the report of the Group of Rapporteurs on its nineteenth session (E/CN.2/[illegible]/Rev.1), the communication from the expert from the Federal Republic of Germany (E/CN.2/[illegible]/L.5/Add.[illegible]), two communications from the expert from the United States (E/CN.[illegible]/L.[illegible] and L.[illegible]), a communication from CEFIC (E/CN.2/[illegible]/L.[illegible]), and a communication from IRU circulated as a conference-room paper.

103. Statements were made in turn by the expert from the Federal Republic of Germany, the representative of IRU and the expert from the United States of America, each of whom introduced his proposals and communications.

104. During the discussion the proponents of both proposals reaffirmed the positions already expressed at the sessions of the Group of Rapporteurs. The statement by the representative of CEFIC, who introduced his organization's communication (E/CN.2/[illegible]/L.[illegible]), prompted some experts to express their agreement with the idea of an abbreviated rule based on the CEFIC document; others, who disagreed with the CEFIC document, observed that, in the CEFIC system, the same number did not always have the same meaning.

105. Finally, on a proposal by the expert from the Union of Soviet Socialist Republics, the Committee voted on the question whether the whole of document E/CN.2/[illegible]/L.5/Add.2, annex 1, section 5, should be referred back to the Group of Rapporteurs for further study. The vote produced an affirmative answer. After the vote, the observer from the Netherlands said that, had he been entitled to vote, he would have voted affirmatively.

106. On the proposal of the expert from the United States of America, the Committee adopted document E/CN.2/[illegible]/L.5/Add.2, annex 1, without its section 5 and its paragraph 4.3.1, both having been voted out. That decision led the expert from France to express reservations concerning the annex as a whole and paragraph 4.4 in particular.

107. A discussion followed as to whether document E/CN.2/[illegible]/L.5/Add.2, annex 1, as adopted (i.e. without paragraph 4.3.1 and section 5) should be annexed to the report for submission to the Economic and Social Council and then published with the other recommendations. It was decided by vote that the provisions in question should be not only annexed to the report for transmission to the Economic and Social Council but also published with the other recommendations adopted during the session.

120. The Committee then turned to paragraph 1(c) and decided to delete the words "and in consequence it cannot take full advantage of the Recommendation to reach decisions, recommendations or an application of the class or division of visa, the United Nations should consult, if necessary, ...".

121. The title of the Recommendation (Annex I) was amended to read "Nature of Record, Class or Visa Symbols and United Nations Travel Document".

122. On the proposal to delete the second sentence of paragraph 1(c) and the last sentence of paragraph 1(d) and Recommendation 2(b), the expert from the United States pointed out that he was not in favour of deleting the sentences in question.

123. The Committee decided to retain the second sentence of paragraph 1(c) and the last sentence of paragraph 1(d) and Recommendation 2(b).

124. The Committee also put the provisions of paragraph 1(c) into a more satisfactory form.

125. On the proposal of the expert from Canada, which was put to the vote, the Committee studied paragraph 1(d) with a view to amending the instructions to be transmitted to the Group of Experts.

126. Paragraph 1(d), after a further vote, was retained without the word "for a shipper or the owner".

127. After a long discussion of paragraph 1(e), the Committee voted on whether the Group of Experts should study the rules in the annex proposed in document E/CN.2/CONF.2/L.2, annex 1, part I, in conformity with the proposal by the expert from the United States of America in document E/CN.2/CONF.2/L.2/Add.1, or on the CCITT recommendation reproduced in document E/CN.2/CONF.2/L.2/3.

128. As a result of the vote a small informal group was invited to consider the matter on the basis of document E/CN.2/CONF.2/C2, annex 1, and the proposal in documents E/CN.2/CONF.2/L.2/C and L.2.1.

129. The results of the group's work were explained by the expert from Canada.

130. Before considering the text proposed, the Committee expressed its gratitude to the expert from Canada, who had offered to forgo the hospitality of his residence in Geneva during the week-end.

131. The expert from Canada proposed that the texts prepared by the informal group should be adopted and added to the sections already approved for publication in the Recommendations. The expert from the Federal Republic of Germany expressed a contrary opinion.

122. Before taking a decision on the matter, the Committee decided that there should be prepared by the secretariat a study.

123. Paragraphs 3.1 and 3.2 of the annex were adopted. The Chairman of Sweden and Mr. Salgaiver will decide on the deletion of the word [illegible] at a later date. The corrections of the Group of Experts and those of the Group of Experts will be co-ordinated by [illegible]. The word "[illegible]" was deleted from the [illegible] version.

124. After a long discussion, in which the observer from the United Kingdom and the Federal Republic of Germany expressed reservations on the ground that organic peroxides (and matters relating to [illegible]) fell outside the Committee's terms of reference, the Committee voted in favour of the annex proposed by the informal group.

125. The votes concerning [illegible] were adopted by [illegible] between [illegible] and [illegible].

126. When paragraph 4.2 was considered, the expert from the Federal Republic of Germany said that he would abstain from participating in a decision on the question on that he was strongly opposed to [illegible] which might be adopted.

127. Paragraph 4.2.1 was adopted, by [illegible] (section 6), the latter with a purely editorial addition.

128. At the request of the expert from the Federal Republic of Germany, the Committee took a roll-call vote on whether the provisions of section 7, in their amended form (ST/SG/AC.10/C.2 as amended) should be adopted. The result of the vote, which was taken in accordance with rule 61 of the rules of procedure of the Economic and Social Council, was as follows:

Expert from Italy	: No
" " Norway	: Abstention
" " Poland	: No
" " Thailand	: Abstention
" " Union of Soviet Socialist Republics	: Yes
" " United Kingdom	: Yes
" " United States of America	: Yes
" " Canada	: Yes
" " France	: Yes
" " Germany, Federal Republic of	: No
" " Iraq	: Abstention

The motion was thus adopted by 5 votes to 3, with 3 abstentions.

APPROVAL OF AND COMMENTS ON THE RESPECTIVE REPORTS OF THE GROUP OF EXPERTS ON EXPLOSIVES AND THE GROUP OF RAPPORTEURS

141. The Committee expressed its gratitude to the Group of Experts on Explosives and the Group of Rapporteurs for their contributions to the Committee's work. Subject to the decisions adopted during the session, it approved the reports of the Group of Experts on its sixteenth session (E/CN.3/GOE.5/61 and Annex.1/Rev.1) and of the Group of Rapporteurs on its seventeenth, eighteenth and nineteenth sessions (E/CN.3/GOE.3/58, 59, 60).

FUTURE WORK AND CALENDAR OF MEETINGS

142. The Committee decided on a list of items for its future work and on the calendar of meetings for 1977 and 1978.

143. With regard to its subsidiary bodies, it approved the following programme of work.

Group of Experts on Explosives

New entries in Class 1.

Additions to packing sheets (to take account of technological developments).

Entries in Division 1.6 and appropriate test criteria.

Revision of test procedure (exchange of practical experience with the aim of a stricter definition).

Water-wetted explosives (hexolite, octolite, pentolite, picrite with not less than 15 per cent water, which are not in Division 1.1).

Technical and editorial revision of chapters 4 and 10 of the Recommendations.

Group of Rapporteurs of the Committee of Experts

(1) General

International convention on the transport of dangerous goods by all modes of transport (subject to decision of the United Nations Economic and Social Council and to the resources to be made available for this task).

Review of the new edition of the Recommendations.

(2) Listing and classification

Definition of classes.

Effects of the precedence table on the classification.

New substances to be included in the list.

Classification of tear-gas substances, pyrophoric selenium metal and isocyanates.

1977

1-12 August (Geneva)	Group of Experts on Seismology (4 working weeks)
15-19 August	Group of Rapporteurs of the Committee (1 meeting)

1978

February-March (Geneva)	Group of Experts on Seismology (10 working days) (Technical meetings)
August (Geneva)	Group of Experts on Seismology (5 working days) (Technical meeting)
August (Geneva)	Group of Rapporteurs of the Committee (1 working day) (Short technical meeting)

136. The Committee also considered that members of the Group of Experts could meet informally, without Secretariat assistance, to consider the arrangements of work to proceed. It adopted the following schedule:

20-24 June 1977 (Washington, D.C.)	Subsequent to IV visit to the Washington and Alaskan sites in the Intermediate Re

This informal meeting will be organized by the experts from the United States of America.

8-12 August 1977 (Geneva)	Identification and testing criteria
During the week 7-11 November (tentative) (Canada)	Continued considerations

This informal meeting will be organized by the expert from Canada.

147. The Committee also considered that an informal meeting to organize procedures should be held during the next two years, but no practical steps were taken in that respect.

148. The Committee expressed the hope that in future the sessions of its subsidiary bodies might be spread more evenly over the two years which elapsed between its own sessions.

149. The Committee was informed by the Secretariat that the running costs of the Committee, the Group of Experts on Seismology and the Group of Rapporteurs for 1976 and 1977 were estimated at $273,300, of which $110,100 represented the cost of staff of the Economic Commission for Europe who were placed at the Committee's disposal.

Annex 1

TRANSPORT OF DANGEROUS GOODS
(ST/SG/AC.10/1)

Chapter 1. SCOPE OF THE RECOMMENDATIONS

Amendments adopted by the Committee

Paragraphs 1.11, 1.12 and 1.13 should be replaced by:

1.11 Class 1 comprises:

(a) explosive substances (a substance which is not itself an explosive but which can form an explosive atmosphere of gas, vapour or dust is not included in Class 1, except those which are too dangerous to transport or those where the predominant hazard is one appropriate to another class);

(b) explosive articles, except devices containing explosive substances in such quantity or of such a character that their inadvertent or accidental ignition or initiation during transport shall not cause any manifestation external to the device either by projection, fire, smoke, heat or loud noise; and

(c) substances and articles not mentioned under (a) and (b) above which are manufactured with a view to producing a practical, explosive or pyrotechnic effect.

Transport of explosive substances which are unduly sensitive or so reactive as to be subject to spontaneous reaction is prohibited.

For the purpose of these Recommendations, the following definitions apply:

(a) An explosive substance is a solid or liquid substance (or a mixture of substances) which is in itself capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings. Included are pyrotechnic substances even when they do not evolve gases.

(b) A pyrotechnic substance is a substance or a mixture of substances designed to produce an effect by heat, light, sound, gas or smoke or a combination of these as the result of non-detonative self-sustaining exothermic chemical reactions.

(c) An explosive article is an article containing one or more explosive substances.

1.12 Class 1 is divided into five divisions:

Division 1.1 Substances and articles which have a mass explosion hazard (a mass explosion is one which affects virtually the entire load practically instantaneously)

Division 1.2 Substances and articles which have a projection hazard but not a mass explosion hazard

Division 1.3 Substances and articles which have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard

This division comprises substances and articles:

(a) which give rise to considerable radiant heat, or

(b) which burn one after another, producing minor blast or projection effects or both.

Division 1.4 Substances and articles which present no significant hazard

This division comprises substances and articles which present only a small hazard in the event of ignition or initiation during transport. The effects are largely confined to the package and no projection of fragments of appreciable size or range is to be expected. An external fire must not cause practically instantaneous explosion of virtually the entire contents of the package.

NOTE: Substances and articles in this division so packaged or designed that any hazardous effects arising from accidental functioning are confined within the package unless the package has been degraded by fire, in which case all blast or projection effects are limited to the extent that they do not significantly hinder fire-fighting or other emergency response efforts, in the immediate vicinity of the package, are in Compatibility Group S.

Division 1.5 Very insensitive substances

This division comprises explosive substances which are so insensitive that there is very little probability of initiation or of transition from burning to detonation under normal conditions of transport. As a minimum requirement they must not explode in the fire test (see 4.63).

NOTE: The probability of transition from burning to detonation is greater when large quantities are stowed in the hold of a ship. As a consequence, the stowage requirements for explosive substances of Division 1.1 and Division 1.5 are identical except for segregation.

1.13 Class 1 is unique in that the type of packaging frequently has a devisive effect on the hazard and therefore on the assignment to a particular division. Where multiple hazard classifications have been assigned, they are listed on the individual packing sheets. The correct division is determined by use of the method outlined in Chapter 4.

Add to the end of paragraph 1.39:

"(See also paragraph 4.12)".

Add:

Precedence of hazard characteristics

1.42 The following table may be used as a guide in determining the class of a substance, having more than one risk, when it is not named in the list of dangerous goods in chapter 3.

	4.2 */	4.3 */	5.1 I **/ */	5.1 II **/ */	5.1 III **/ */	6.1 I (Inh)	6.1 I (Derm)	6.1 I (Oral)	6.1 II	6.1 III	8 I L	8 I S	8 II L	8 II S	8 III L	8 III S
3 I			3	3	3	6.1	6.1	3	3	3	3	-	3	-	3	-
3 II			3	3	3	6.1	6.1	3	3	3	8	-	3	-	3	-
3 III			3	3	3	6.1	6.1	6.1	6.1	3	8	-	8	-	3	-
4.1 I */	4.2	4.3	4.1	4.1	4.1	6.1	6.1	4.1	4.1	4.1	-	4.1	-	4.1	-	4.1
4.1 II */	4.2	4.3	4.1	4.1	4.1	6.1	6.1	6.1	4.1	4.1	-	4.1	-	4.1	-	4.1
4.1 III */	4.2	4.3	4.1	4.1	4.1	6.1	6.1	6.1	6.1	4.1	-	8	-	8	-	4.1
4.2 I */		4.2	4.2	4.2	4.2	6.1	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
4.2 II */		4.2	4.2	4.2	4.2	6.1	6.1	4.2	4.2	4.2	4.2	8	4.2	4.2	4.2	4.2
4.2 III */		4.3	5.1	5.1	4.2	6.1	6.1	6.1	6.1	4.2	8	8	8	8	4.2	4.2
4.3 I */			5.1	4.3	4.3	6.1	6.1	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
4.3 II */			5.1	4.3	4.3	6.1	6.1	4.3	4.3	4.3	8	8	4.3	4.3	4.3	4.3
4.3 III */			5.1	5.1	4.3	6.1	6.1	6.1	6.1	4.3	8	8	8	8	4.3	4.3
5.1 I */						6.1	6.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
5.1 II */						6.1	6.1	5.1	5.1	5.1	8	8	5.1	5.1	5.1	5.1
5.1 III */						6.1	6.1	6.1	6.1	5.1	8	8	8	8	5.1	5.1
6.1 I (Inh)											6.1	6.1	6.1	6.1	6.1	6.1
6.1 I (Derm)											8	6.1	6.1	6.1	6.1	6.1
6.1 I (Oral)											8	6.1	6.1	6.1	6.1	6.1
6.1 II (Inh)											8	6.1	6.1	6.1	6.1	6.1
6.1 II (Derm)											8	6.1	8	6.1	6.1	6.1
6.1 II (Oral)											8	8	8	6.1	6.1	6.1
6.1 III											8	8	8	8	8	8

*/ There are at present no established criteria for determining packaging groups within Class 4, divisions 1, 2 and 3, and Class 6, division 1. For the time being, the degree of hazard is to be assessed by analogy with listed substances, allocating the substances to I, high; II, medium; and III, low risk.

**/ The precedence of hazard characteristics of substances with an oxidizing component is given only as a guide. Since the combination will give rise to increased reactivity, each substance should be considered individually.

- denotes an impossible combination

The precedence of hazard characteristics of substances in Classes 1, 2, 5.2 and 7 has not been dealt with, since these primary characteristics take precedence.

Annex 2

(1) Additions

IDENTITY OF ARTICLE		HAZARD		PACKING	
Number	Classification	Class (division)	Subsidiary Risks	Special Provisions	Packing Group	Packing Method
0344	PROJECTILES,* with bursting charge	1.4 D				E.144
0345	PROJECTILES,* inert, with tracer*	1.4 S	+			E.144
0346	PROJECTILES,* with burster or expelling charge	1.2 D	+			E.144
0347	PROJECTILES,* with burster or expelling charge	1.4 D	+			E.144
0348	CARTRIDGES FOR WEAPONS, with bursting charge	1.2 F	+			E.112
0349	ARTICLES, EXPLOSIVE,* n.o.s.	1.4 G	+			E.103
0350	ARTICLES, EXPLOSIVE,* n.o.s.	1.4 B	+			E.103
0351	ARTICLES, EXPLOSIVE,* n.o.s.	1.1 C	+			E.103
0352	ARTICLES, EXPLOSIVE,* n.o.s.	1.4 D	+			E.103
0353	ARTICLES, EXPLOSIVE,* n.o.s.	1.4 G	+			E.103
0354	ARTICLES, EXPLOSIVE,* n.o.s.	1.1 L	+			E.103
0355	ARTICLES, EXPLOSIVE,* n.o.s.	1.2 L	+			E.103
0356	ARTICLES, EXPLOSIVE,* n.o.s.	1.3 L	+			E.103
0357	SUBSTANCES, EXPLOSIVE,* n.o.s.	1.1 L	+			E.154 A
0358	SUBSTANCES, EXPLOSIVE,* n.o.s.	1.2 L	+			E.154 A
0359	SUBSTANCES, EXPLOSIVE,* n.o.s.	1.3 L	+			E.154 A
0360	BLASTING CAP ASSEMBLIES (DETONATOR ASSEMBLIES FOR BLASTING)* NON ELECTRIC	1.1 B	+			E.105 A

SUBSTANCE OR ARTICLE		HAZARDS			PACKING	
Number	Designation	Class Division	Subsidiary Risks	Special Provisions	Packing Group	Packing Method
0361	BLASTING CAP ASSEMBLIES (DETONATOR ASSEMBLIES FOR BLASTING)* NON ELECTRIC	1.4 B	+			M.105 A
0362	AMMUNITION, PRACTICE	1.4 G	+			M.102
0363	AMMUNITION, PROOF	1.4 G	+			E.102
0364	DETONATORS FOR AMMUNITION*	1.2 B	+			E.128
0365	DETONATORS FOR AMMUNITION*	1.4 B	+			E.128
0366	DETONATORS FOR AMMUNITION*	1.4 S	+			E.128
0367	FUZES, DETONATING*	1.4 S	+			E.157
0368	FUZES, IGNITING*	1.4 S	+			E.137
0369	WARHEADS, ROCKET, with bursting charge	1.1 F	+			E.157
0370	WARHEADS, ROCKET, with burster* or expelling charge	1.4 D	+			E.157
0371	WARHEADS, ROCKET, with burster* or expelling charge	1.4 F	+			E.157
0372	GRENADES, PRACTICE, hand or rifle	1.2 G	+			E.138
0373	SIGNAL DEVICES, HAND*	1.4 S	+			E.150
0374	SOUNDING DEVICES, EXPLOSIVE*	1.1 E	+			E.153
0375	SOUNDING DEVICES, EXPLOSIVE*	1.2 E	+			E.153
0376	PRIMERS,* TUBULAR	1.4 S	+			E.143
0377	PRIMERS,* CAP TYPE	1.1 B	+			E.142 A
0378	PRIMERS,* CAP TYPE	1.4 B	+			E.142 A
03799	CASES, CARTRIDGE, EMPTY WITH PRIMER	1.4 C	+			E.116
0380	ARTICLES, PYROPHORIC*	1.2 L	+			E.103 A
0381	CARTRIDGE, POWER DEVICE*	1.2 C	+			E.114
0382	COMPONENTS, EXPLOSIVE TRAIN,* n.o.s.	1.2 B	+			E.122 A

Number	DESCRIPTION OF ARTICLE	HAZARD			PACKING	
	Designation	Class Division	Subsidiary risks	Special Provisions	Packing Group	Packing Method
0383	CYCLOTRIMETHYLENE-TRINITRAMINE, DESENSITIZED, with not less than 15 per cent by mass of phlegmatizer	1.1 D	+			E.122 A
0384	CYCLOTRIMETHYLENE-TRINITRAMINE, DESENSITIZED, with not less than 10 per cent by mass of phlegmatizer	1.1 D	+			E.122 A
0385	2-DIAZO-1-NAPHTHOL-4-SULPHONYLCHLORIDE	1.1 D				E.2
0386	TRINITROBENZENESULPHONIC ACID	1.1 D	+			E.2
0387	TRINITROFLUORENONE	1.1 D	+			E.2
0388	TRINITROTOLUENE (TNT) mixed with TRINITROBENZENE or HEXANITROSTILBENE	1.1 D	+			E.2
0389	TRINITROTOLUENE (TNT) mixed TRINITROBENZENE and HEXANITROSTILBENE	1.1 D	+			E.2
0390	TRITONAL (TNT mixed with aluminium)	1.1 D	+			E.2
0391	CYCLOTRIMETHYLENE-TRINITRAMINE (CYCLONITE or HEXOGENE or RDX) mixed CYCLOTETRA-METHYLENETETRANITRAMINE (HMX or OCTOGENE), containing by weight at least 15 per cent water or at least 10 per cent phlegmatiser	1.1 D	+			E.6
0392	HEXANITROSTILBENE	1.1 D	+			E.11
0393	HEXATONAL (Hexogen mixed with Trinitrotoluene and aluminium), CAST*	1.1 D	+			E.13
0394	TRINITRORESORCINOL (STYPHNIC ACID) containing by weight not less than 20 per cent water (or mixture of alcohol and water)	1.1 D	+			E.24

SUBSTANCE OR ARTICLE		HAZARDS			PACKING	
Number	Designation	Class Division	Subsidiary Risks	Special Provisions	Packing Group	Packing Method
2562	Tert.Butyl perisobutyrate - Max. 52 per cent in solution	5.2		-15°C	II	P1e P1e
2563	Methyl ethyl ketone peroxide(s) Max. 50 per cent with more than 10 per cent available oxygen	5.2		97	II	P1a P1e P7a
2564	Trichloroacetic acid, solution	8			II	
2565	Dicyclohexylamine	8			III	
2567	Sodium pentachlorophenate	6.1			II	
2568	Dichlorotriazinetrione and its salts	5.1			II	
2569	Trichloro-s-triazinetrione and its salts, dry	5.1			II	
2570	Cadmium compounds, except cadmium selenide and cadmium sulphide	6.1			III	
2571	Ethylsulphuric acid	8			II	
2572	Phenylhydrazine	6.1			II	
2573	Thallium chlorate	6.1	5.1		II	
2574	Tricresylphosphate with more than 3 per cent ortho isomer	6.1			II	
2575	Vanadium compounds, n.o.s.	6.1			II	
2576	Phosphorus oxybromide, molten	8			II	
2577	Phenylacetyl chloride	8			II	
2578	Phosphorus trioxide	8			III	
2579	Piperazine (Diethylene diamine, pyrazine hexahydride)	8			III	
2580	Aluminium bromide, solution	8			III	
2581	Aluminium chloride, solution	8			III	

SUBSTANCE OR ARTICLE		HAZARDS			PACKING	
Number	Designation	Class Division	Subsidiary Risks	Special Provisions	Packing Group	Packing Method
2582	Ferric chloride (Iron chloride), solution	8			III	
2583	Alkyl, aryl and toluene sulphonic acids, solid containing more than 5 per cent of free sulphuric acid	8			II	
2584	Alkyl, aryl and toluene sulphonic acids, liquid, containing more than 5 per cent of free sulphuric acid	8			II	
2585	Alkyl, aryl and toluene sulphonic acids, solid, containing not more than 5 per cent of free sulphuric acid	8			III	
2586	Alkyl, aryl and toluene sulphonic acids, liquid, containing not more than 5 per cent of free sulphuric acid	8			III	
2587	Benzoquinone (Quinone, 1,4-cyclohexadienedione)	6.1			II	
2588	Pesticides, solid, liquid, n.o.s.	6.1		44		
2589	Vinyl chloroacetate	6.1			II	
2590	Asbestos, white	9			III	
2591	Xenon, refrigerated liquid	2				
2592	Distearylperoxydicarbonate with 15 per cent of stearylalcohol	5.2			II	P1a
2593	Bis-(2-methylbenzoyl) peroxide with at least 15 per cent water	5.2	E	+30°C	I	P1b
2594	Tert.Butylper-neodecanoate, technical pure	5.2		- 5°C	II	P1e
2595	Dimyristylperoxydicarbonate, technical pure	5.2		+20°C	II	P1a
2596	3-tert-Butylperoxy-3-phenylphthalide	5.2			II	P1a

	SUBSTANCE OR ARTICLE	HAZARDS			PACKING	
Number	Designation	Class Division	Subsi-diary Risks	Special Provi-sions	Packing Group	Packing Method
2597	Bis-(3,5,5-trimethyl-1,2 dioxolaryl-3)-peroxide as a paste with at least 50 per cent phlegmatizer	5.2		+30°C	II	Pla
2598	Ethyl-3,3-bis (tert. Butylperoxy)-butyrate with at least 50 per cent of inert, inorganic solid	5.2			II	Pla
2599	Chloratrifluoromethane/ trifluoromethane azeotropic mixture containing about 60 per cent chlorotrifluoromethane (R503)	2				
2600	Carbon monoxide/hydrogen mixture (Fischer Tropsch gas, Synthesis gas, Blau gas, Water gas)	2	6.1			
2601	Cyclobutane (Tertramethylene)	2	3			
2602	Dichlorodifluoromethane/ difl .croethane azetropic mixture containing about 74 per cent dichlorodifluoromethane (R500)	2				
2603	Cycloheptatriene (1,3,5-Cycloheptatriene, Tropilidene)	3	6.1		II	
2604	Boron trifluoride diethyl etherate	3	8		II	
2605	Methoxymethyl isocyanate	3	6.1		I	

SUBSTANCE OR ARTICLE		HAZARDS			PACKING	
Number	Designation	Class or Division	Subsidiary Risks	Special Provisions	Packing Group	Packing Method
2606	Methyl orthosilicate (Tetramethoxysilane)	6.1	3		II	
2607	Acrolein dimer, stabilized (2-Formyl-3,4-Dihydro-2H-pyran)	3			II	
2608	Nitropropanes	3			III	
2609	Triallyl borate	6.1			III	
2610	Triallylamine	3			II	
2611	Propylene chlorohydrin (Chloropropanol, 2-Chloro-1-propanol)	6.1			II	
2612	Methyl propyl ether (Methyl)	3			II	
2614	Methallyl alcohol (3-Buten-1-ol, methylallyl alcohol)	3			II	
2615	Ethyl propyl ether (Ethoxy propane-1)	3			II	
2616	Tri-Isopropyl borate	3			II	
2617	Methyl cyclohexanols (Hexahydromethyl phenol, hexahydrocresol) of flash point below 141°F (60.5°C)	3			III	
2618	Vinyl toluene (Methylstyrene, methylvinylbenzen, tolylethylene mixed isomers inhibited					
2619	Benzyl dimethylamine (N,N-Dimethylbenzylamine)	8			III	
2620	Amyl butyrates	3			III	
2621	Acetyl methyl carbinol (Acetoin, 3 Hydroxybutan-2-one)	3			III	
262						
2622	Glycidaldelyde (2,3-Epoxy-1-propanol)	3	6.1		II	
2623	Firelighters, solid containing inflammable liquid	4.1		102		

SUBSTANCE OR ARTICLE		HAZARDS			PACKING	
Number	Designation	Class Division	Subsidiary Risks	Special Provisions	Packing Group	Packing Method
2624	Magnesium silicide	4.3			II	
2626	Chloric acid solution not more than 10 per cent strength	5.1			II	
2627	Nitrites, inorganic, n.o.s.	6.1		105	II	
2628	Potassium fluoroacetate	6.1			I	
2629	Sodium fluoroacetate	6.1			I	
2630	Selenates and selenites	6.1			I	
2642	Fluoroacetic acid	6.1			I	
2643	Methyl bromoacetate	6.1			II	
2644	Methyl iodide (Iodomethane)	6.1			II	
2645	Phenacyl bromide (ω-Bromoacetophenone)	6.1			II	
2646	Hexachlorocyclopentadiene (Perchlorocyclopentadiene)	6.1			I	
2647	Malononitrile (Methylene cyanide, Cyanoacetonitrile, Malonic dinitrile)	6.1			II	
2648	1,2-Dibromobutan-3-one	6.1			II	
2649	1,3-Dichloroacetone (1,3-Dichloro-2-propane)	6.1			II	
2650	1,1-Dichloro-1-nitroethane	6.1			II	
2651	4,4' -Diaminodiphenyl methane (p,p'-Methylene dianiline)	6.1			III	
2653	Benzyl iodide (α-iodotoluene)	6.1			II	
2655	Potassium fluorosilicate (Potassium silicofluoride)	6.1			III	
2656	Quinoline	6.1			III	
2657	Selenium disulphide	6.1			II	

SUBSTANCES OR ARTICLE		HAZARDS			PACKING	
Number	Designation	Class Division	Subsidiary Risks	Special provisions	Packing Group	Packing Method
2658	Selenium metal, in powder form, non-pyrophoric	6.1			III	
2659	Sodium chloroacetate	6.1			III	
2660	Nitrotoluidines (mono)	6.1			III	
2661	Hexachloroacetone (Hexachloro-2-propanone)	6.1			III	
2662	Hydroquinone (1,4-Benzenediol, quinol, hydroquinol, p-dihydroxybenzene)	6.1			III	
2664	Dibromomethane (Methylene dibromide, methylene bromide)	6.1			III	
2666	Ethyl cyanoacetate (Malonic ethyl ester nitrile)	6.1			III	
2667	Butyl toluenes (p-tert-Butyl toluene)	6.1			III	
2668	Chloroacetonitrile (Chloromethane nitrile, chloromethyl cyanide)	6.1			II	
2669	Chlorocresols	6.1			II	
2670	Cyanuric chloride (2,4,6-trichloro-1,3,5-triazine)	8			III	
2671	Aminopyridines (o-, m-, p-)	6.1			II	
2672	Ammonia solutions having a density (specific gravity) between 0.880 and 0.957 at 15°C, in water, containing more than 10 per cent and not more than 35 per cent ammonia	8			III	
2673	2-Amino-4-chlorophenol	6.1			II	
2674	Sodium fluorosilicate (Sodium silicofluoride)	6.1			III	
2675	Triethylene diamine	8			III	
2676	Stibine (Antimony hydride)	2	6.1; 3			
2677	Rubidium hydroxide solution	8			II	
2678	Rubidium hydroxide	8			II	
2679	Lithium hydroxide solution	8			II	
2680	Lithium hydroxide monohydrate	8			II	

SUBSTANCE OR ARTICLE		HAZARDS			PACKING	
Number	Designation	Class Division	Subsidiary Risks	Special provisions	Packing Group	Packing Method
2681	Caesium hydroxide solution	8			II	
2682	Caesium hydroxide	8			II	
2683	Ammonium sulphide solution	8	6.1; 3		II	
2684	Diethyl aminopropylamine	3	8		III	
2685	N,N-Diethylethylene diamine	8	3		II	
2686	Diethylaminoethanol (N,N-Diethylethanolamine)	8			III	
2687	Dicyclohexylammonium nitrite (Dicyclohexylamine nitrite)	6.1			III	
2688	1-Chloro-3 bromopropane (Trimethylene chlorobromide)	6.1			III	
2689	Glycerol-alpha monochloro-hydrin (*-Chloro-propanediol-1, 2,3 chloro-1,2 dihydroxypropane)	6.1			III	
2690	N-n.Butyl imidazole (N-N-Butyl iminazole)	6.1			II	
2691	Phosphorus pentabromide	8			II	
2692	Boron tribromide (Tribromoborane)	8			I	
2693	Bisulphites, inorganic, aqueous solutions of, n.o.s.	8			III	
2698	1,2,3,6 Tetrahydrophthalic anhydride (4 Cyclohexene, 1,2 Dicarboxylic anhydride)	8			III	
2699	Trifluoroacetic acid	8			I	
2702	Butyl mercaptan	3			II	
2703	Isopropyl mercaptan	3			II	
2704	Propyl mercaptan	3			II	

SUBSTANCE OR ARTICLE		HAZARDS			PACKING	
Number	Designation	Class Division	Subsidiary Risks	Special provisions	Packing Group	Packing Method
2705	1-Pentol (3-Methyl-3-penten-1-yne-ol 1-hydroxy-3-3-methyl-3-penten-1-yne)	6			II	
2706	Diethylcarbinol (3-Pentanol)	3			II	
2707	Dimethyldioxanes (2,6-dimethyldioxane-1, 3; 2,3-dimethyl-1,4-dioxane)	3			II	
2708	Butoxy (1-Methoxy-1-acetoxy-butane)	3			III	
2709	Butyl benzene (2-Methyl-1 phenyl propane 1-phenylbutane 2-phenylbutane)	3			III	
2710	Butyrone (Dipropylketone, 4-heptanone)	3			III	
2711	Dibromobenzene (Meta-dibromobenzene; 1,3-Dibromobenzene)	6.1			III	
2712	Iso-propenylbenzene (2-Methylstyrene, 2-phenylpropene)	3			II	
2713	Acridine (Dibenzopyridine)	6.1			III	
2714	Zinc resinate	4.1			III	
2715	Aluminium resinate	4.1			III	
2716	1-4 Butynediol (Butyne-2-diol-1,4; dimethoxyacetylene)	6.1			III	
2717	Camphor synthetic (Camphanone)	6.1			III	
2718	Tripropylaluminium	4.2			I	
2719	Barium bromate	5.1	6.1		II	
2720	Chromium nitrate	5.1			III	
2721	Copper chlorate	5.1			II	
2722	Lithium nitrate	5.1			III	
2723	Magnesium chlorate	5.1			II	

SUBSTANCE OR ARTICLE		HAZARDS			PACKING	
Number	Designation	Class Division	Subsidiary Risks	Special Provisions	Packing Group	Packing Method
2724	Magnanese nitrate	5.1			III	
2725	Nickel nitrate	5.1			III	
2726	Nickel nitrite	5.1			III	
2727	Thallium nitrate	6.1			II	
2728	Zirconium nitrate	5.1			III	
2729	Hexachlorobenze (Perchlorobenzene)	6.1			III	
2730	Nitroanisole (1-Methoxy-2-nitrobenzene 1-Methoxy-3-nitrobenzene 1-Methoxy-4-nitrobenzene)	6.1			III	
2732	Nitrobromobenzene (Nitrobenzene bromide)	6.1			III	
2733	Alkylamines and polyamines, flash point below 32°C and boiling point above 35°C but not more than 200°C, n.o.s.	3			II	
2734	Alkylamines and polyamines, flash point above 32°C and boiling point above 35°C but not more than 200°C, n.o.s.	8			II	
2735	Alkylamines and polyamines, flash point 32°C or above and boiling point more than 200°C, n.o.s.	8			III	
2737	Bisaminopropylamine	8			II	
2738	N-Butylaniline	6.1			II	
2739	Butyric anhydride	8			III	
2740	n-Propyl chloroformate	3	6.1; 8		I	
2741	Barium hypochlorite containing more than 22 per cent available chlorine	5.1			II	
2742	Chloroformates, n.o.s. with a flash point above or equal to 32°C	6.1	8	104	II	
2743	n-Butylchloroformate	6.1	8	104	II	
2744	Cyclobutylchloroformate	6.1	8	104	II	
2745	Chloromethylchloroformate	6.1	8	104	II	
2746	Phenylchloroformate	6.1	8	104	II	
2747	tert. Butylcyclohexyl-chloroformate	6.1		104	III	

SUBSTANCE OR ARTICLE		HAZARD			PACKING	
Number	Designation	Class (division)	Sub-risk(s)	Special provisions	Packing Group	Packing Method
2748	2-Ethylhexylchloroformate	6.1	8	153	II	
2749	Tetramethylsilane	3			I	
2750	1,3-Dichloropropanol-2	6.1			II	
2751	Diethylthiophosphoryl chloride	8			II	
2752	1,2-Epoxy-3-ethoxypropane	3			III	
2753	N-Ethylbenzyltoluidines	6.1			III	
2754	N-Ethyltoluidines (o-, m-, p-)	6.1			II	
2755	N-Chloroperoxybenzoic acid, maximum 86%	5.2	8		II	P20
2756	Organic peroxides, mixtures	5.2		104	-	-
2757	Carbamate pesticides (Compounds and preparations) toxic, n.o.s.	6.1		61		
2758	Carbamate pesticides (Compounds and preparations) liquid, toxic, n.o.s. flash point below 32°C	6.1	3	61		
2759	Arsenical Pesticides (Compounds and preparations) toxic, n.o.s.	6.1		61		
2760	Arsenical Pesticides (Compounds and preparations) liquid, toxic, n.o.s. flash point below 32°C	6.1	3	61		
2761	Organochlorine Pesticides (Compounds and preparations) toxic, n.o.s.	6.1		61		
2762	Organochlorine Pesticides (Compounds and preparations) liquid, toxic, n.o.s. flash point below 32°C	6.1	3	61		
2763	Triazine Pesticides (Compounds and preparations) toxic, n.o.s.	6.1		61		

SUBSTANCE OR ARTICLE		HAZARDS			PACKING	
Number	Designation	Class Division	Subsidiary Risks	Special Provisions	Packing Group	Packing Method
2764	Triazine Pesticides (Compounds and preparations) liquid, toxic, n.o.s. flash point below 32°C	6.1	3	61		
2765	Phenoxyl Pesticides (Compounds and preparations) toxic, n.o.s.	6.1		61		
2766	Phenoxyl Pesticides (Compounds and preparations) liquid, toxic, n.o.s. flash point below 32°C	6.1	3	61		
2767	Phenyl Urea Pesticides (Compounds and preparations) toxic, n.o.s.	6.1		61		
2768	Phenyl Urea Pesticides (Compounds and preparations) liquid, toxic, n.o.s. flash point below 32°C	6.1	3	61		
2769	Benzoic Derivative Pesticides (Compounds and preparations) toxic, n.o.s.	6.1		61		
2770	Benzoic Derivative Pesticides (Compounds and preparations) liquid, toxic, n.o.s. flash point below 32°C	6.1	3	61		
2771	Dithiocarbamate Pesticides (Compounds and preparations) toxic, n.o.s.	6.1		61		
2772	Dithiocarbamate Pesticides (Compounds and preparations) liquid, toxic, n.o.s. flash point below 32°C	6.1	3	61		
2773	Phthalimide Derivative Pesticides (Compounds and preparations) toxic, n.o.s.	6.1		61		

IDENTIFICATION OF ARTICLE		MARKS			PACKING	
Number	Designation	Class (division)	Subsidiary risk(s)	Special provisions	Packing Group	Packing Method
2774	Phthalimide derivative pesticide (Compounds and preparations) liquid, toxic, n.o.s. flash point not below 23°C	6.1		61		
2775	Copper based pesticides (Compounds and preparations) toxic, n.o.s.	6.1		61		
2776	Copper based fungicides (Compounds and preparations) liquid, toxic, n.o.s. flash point not below 23°C	6.1	3	61		
2777	Mercury based pesticides (Compounds and preparations) toxic, n.o.s.	6.1		61		
2778	Mercury based fungicides (Compounds and preparations) liquid, toxic, n.o.s. flash point below 23°C	6.1	3	61		
2779	Substituted Nitrophenol Pesticides (Compounds and preparations) toxic, n.o.s.	6.1		61		
2780	Substituted Nitrophenol Pesticides (Compounds and preparations) liquid, toxic, n.o.s. flash point below 23°C	6.1	3	61		
2781	Bipyridilium Pesticides (Compounds and preparations) toxic, n.o.s.	6.1		61		
2782	Bipyridilium Pesticides (Compounds and preparations) liquid, toxic, n.o.s. flash point below 23°C	6.1	3	61		
2783	Organophosphorus Pesticides (Compounds and preparations) toxic, n.o.s.	6.1		61		

SUBSTANCE OR ARTICLE		HAZARDS			PACKING	
Number	Designation	Class Division	Subsidiary Risks	Special Provisions	Packing Group	Packing Method
2784	Organophosphorus Pesticides (Compounds and preparations) liquid, toxic, n.o.s. flash point below 32°C	6.1	3	61		
2785	4-Thiapentanal (Methylmercapto-propionaldehyde)	6.1			III	

(2) Amendments to existing entries

0005 - Delete the words in brackets.

0007 - Delete the words in brackets.

0044 - For "CAPS, PERCUSSION* " substitute "PRIMERS* , CAP TYPE" 1.4 S

0074 - Add to the text after "... per cent water": "or mixture of alcohol and water".

0114 - Add to the text after "... per cent water": "or mixture of alcohol and water".

0119 - Delete item.

0129 - Same amendment as for 0074.

0130 - Same amendment as for 0074.

0133 - Same amendment as for 0074.

0135 - Same amendment as for 0074.

0212 - Add an * to text of item.

0319 - For PRIMERS* , CANNON, substitute PRIMERS,* TUBULAR 1.3 G

0320 - For PRIMERS* , CANNON, substitute PRIMERS,* TUBULAR 1.4 G

0342 - Delete in the text "exceeding 12.6 per cent nitrogen by dry weight".

0343 - Delete in the text "exceeding 12.6 per cent nitrogen by dry weight".

1004 - Delete item.

1135 - Item should read: "1135 Ethylene chlorohydrin 6.1 II" */

1181 - Item should read: "1181 Ethylchloroacetate 6.1 II" */

1263 - Delete "27" in column "Special provisions".

1309 - Should read: "1309 Aluminium powder, coated, 4.1 [illegible] II"
containing 25% or more of 100
material with a particle
size less than 250 microns

1377 - Delete.

1615 - Delete.

1783 - Delete subsidiary risk 6.1.

1809 - Delete.

1901 - Delete.

1909 - Delete.

1916 - Should read: "1916 Dichloroethyl ether 6.1 II" */

1992 - Delete.

1993 - Delete.

2036 - Should read: "2036 Xenon 2 "

2089 - Should read: "2089 Benzoylperoxide, from
30% to maximum 52%
with inert solid 5.2 B P2 II P1a
91 P3b
P6a
P20b
P20d"

2106 - Add symbol "E" in column "Subsidiary risks".

2107 - In column "Packing Method", list of packagings should read P1a, P2c, P7a, P22a, P25b.

2108 - In column "Packing Method", list of packagings should read: P1a, P2c, P3b, P6a, P1b, P20d, P22a, P25b.

2112 - Add in column Special provision "number 101".
(Text of the corresponding note appears in Chapter 3).

2143 - Add symbol "E" in column "Subsidiary risks".

2170 - In column "Special provisions", "-10°C" should read "0°C"

2171 - In column "Subsidiary risks", E should be deleted.

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*/ Note by the Secretariat. The substance should be deleted from Table 12.1.

2181 - In column "Subsidiary risks", E should be added.

2223 - Delete.

2226 - Should read: "2226 Benzotrichloride 8 II"

2255 - Should read: "2255 Organic peroxides, n.o.s. (samples and small trial quantities for test purposes only) 5.2 77"

2262 - Should read: "2262 Dimethyl carbamoyl chloride 8 II"

2264 - Should read: "2264 Dimethylcyclohexylamine 8 II" */

2479 - Delete.

2499 - Delete.

2518 - Should read: "2518 1,5,9 Cyclododecatriene 8 II"

2540 - Delete.

2543 - Delete.

2544 - Delete.

INDEX

(1) Amend the Index according to the modifications (additions, amendments or deletions) which appear in the previous pages.

(2) In addition, insert at their appropriate places, with cross reference to item number concerned the following names:

- Dichloroisocyanuric acid, dry, - Sodium dichloroisocyanurate, - Potassium dichloroisocyanurate, - Potassium dichloro-s-triazinetrione, - Sodium dichloro-s-triazinetrione, - Chlorocyanuric acids and their salts,	see 2568
- Trichloroisocyanuric acid dry, - Chlorocyanuric acids and their salts, - Mono (trichloro) - tetra (monopotassium dichloro) - penta-s-triazinetriones,	see 2569
- Pesticides, toxic, under compressed gas, n.o.s.,	see 1950
- Iron powder, pyrophoric, - Strontium alloys, pyrophoric,	see 1383

*/ The substance should be deleted from Table 12.1.

- Strontium alloys	see 1434
- Potassium selenite,	
- Potassium selenate,	
- Calcium selenate,	
- Copper selenite,	
- Copper selenate,	
- Baryum selenate,	see 2630
- Baryum selenite,	
- Sodium selenate,	
- Sodium selenite,	
- Zinc selenate,	
- Zinc selenite,	
- Ammonium metavanadate,	see 2575
- Sodium vanadate,	
- Potassium bisulphite solution,	
- Zinc bisulphite solution,	
- Ammonium bisulphite solution,	
- Magnesium bisulphite solution,	see 2693
- Calcium bisulphite solution,	
- Sodium bisulphite solution,	
- n-Butylchloroformate,	
- Cyclobutylchloroformate,	
- Chloromethylchloroformate,	see 2743
- Phenylchloroformate,	
- tert-Butylcyclohexylchloroformate,	
- 2-Ethylhexylchloroformate,	
- Polyamines,	see 2733, 2734 and 2735
- Diquat	
- Paraquat	see 2781 and 2782
- Morfamquat	

prohibi

Description of explosive article or substance	Compatibility group	Classification code
Primary explosive substance	A	1.1 A
Article containing a primary explosive substance	A	1.1 B
	B	1.2 B
	C	1.3 C
Propellant explosive substance or other deflagrating explosive substance or article containing such explosive substance	A	1.1 C
	B	1.2 C
	C	1.3 C
	D	1.4 C
Secondary detonating explosive substance or black powder or article containing a secondary detonating explosive substance, in each case without means of initiation and without a propelling charge	A	1.1 D
	B	1.2 D
	C	1.3 D
	D	1.4 D
	E	1.5 D
Article containing a secondary detonating explosive substance, without means of initiation, with a propelling charge	A	1.1 E
	B	1.2 E
Article containing a secondary detonating explosive substance, with means of initiation, with or without a propelling charge	A	1.1 F
	B	1.2 F
	C	1.3 F
	D	1.4 F

Description of substance or article to be classified	Compatibility group	Classification Code
Pyrotechnic substance, or article containing a pyrotechnic substance, or article containing both an explosive substance and an illuminating, incendiary, lachrymatory or smoke-producing substance (other than a water-activated article or one containing white phosphorus, phosphides or a flammable liquid or gel)	G	1.1 G 1.2 G 1.3 G 1.4 G
Article containing both an explosive substance and white phosphorus	H	1.2 H 1.3 H
Article containing both an explosive substance and an inflammable liquid or gel	J	1.2 J 1.3 J
Article containing both an explosive substance and a toxic chemical agent	K	1.2 K 1.3 K
Explosive substance or article containing an explosive substance and presenting special risk needing isolation of each type	L	1.1 L 1.2 L 1.3 L
Substance or article so packaged or designed that any hazardous effects arising from accidental functioning are confined within the package unless the package has been degraded by fire, in which case all blast or projection effects are limited to the extent that they do not significantly hinder fire fighting or other emergency response efforts in the immediate vicinity of the package	S	1.2 S

Paragraph 4.60 should be amended as follows:

(1) BLASTING CAPS (DETONATORS FOR BLASTING)

Description should read

"Small metal or plastic tubes containing explosives such as lead azide, PETN, or similar explosives. They are essentially two kinds:

(a) Non electric blasting caps which are activated by such means as safety fuse, other igniferous device or flexible detonating cord. These caps may be constructed to detonate instantaneously, or may contain a delay element.

(b) Electric blasting caps which are activated by an electric current. These caps may be constructed to detonate instantaneously, or may contain a delay element."

ST/SG/AC.10/2
Annex I
page 1

(c) the viscosity and flashpoint are in accordance with the following table:

Flowtime in Seconds		Flashpoint in Degrees C
4 mm Cup	3 mm Cup	
Over 20	-	Over 17
Over 60	-	Over 10
Over 100	-	Over 5
Over 150	-	Over -1
Over 220	Over 17	Over -5
-	Over 40	No lower limit

(d) the capacity of the receptacle used does not exceed 50 l.

The methods of tests are as follows:

Viscosity Test: The flowtime in seconds is determined at 23°C using the ISO standard cup with a 4 mm jet (ISO-2431-72). Where the flowtime exceeds 150 seconds, a second test is carried out using the ISO standard cup but modified to take a jet of 3 mm diameter.

Flashpoint: The closed cup flashpoint is determined according to the ISO method ISO/R 1523 for paints and varnishes. Where the temperature of the flashpoint is too low for the use of water in the water bath the following modifications should be made:

(i) Use ethylene glycol in the water bath or other suitable similar container.

(ii) Where appropriate, a refrigerator may be used to cool the sample and apparatus to below the expected flashpoint required by the method. For lower temperatures, the sample and equipment should be cooled to a suitable temperature, for example, by the addition of solid carbon dioxide slowly to the ethylene glycol, the sample being similarly cooled in a separate container of ethylene glycol.

(iii) In order to obtain reliable flashpoints, it is important that the recommended rate of temperature rise for the sample during testing is not exceeded. Depending on the size of the water bath and the amount of ethylene glycol it contains, it may be necessary partially to insulate the water bath to achieve a slow enough rate of temperature rise.

Solvent Separation Test: This test is carried out at 23°C using a 100 ml measuring cylinder of the stoppered type of approximately 25 cm total height and of a uniform internal diameter of approximately 3 cm over the calibrated section. The paint should be stirred to obtain a uniform consistency, and poured in up to the 100 ml mark. The stopper should be inserted and the cylinder left standing undisturbed for 24 hours. After 24 hours, the height of the upper separated layer should be measured and the percentage of this layer as compared with the total height of the sample calculated.

ANNEX I

TRANSPORT OF DANGEROUS GOODS
(ST/SG/AC.10/1)

Chapter 3. SPECIAL PROVISIONS RELATING TO DIVISION 2.1

Amendments adopted by the Committee

paragraph 3.1

Place a footnote-reference asterisk after "III" in the first column of the table, and footnote reading:

"*/ Tear-gas substances are included in this group even if the data relating to them do not agree with the values shown."

ANNEX I

TRANSMITTAL OF DRAFTING RECORDS
(ST/SG/AC.10/1)

Checklist A. Drafting recommendations and decisions

Annex to document ST/SG/AC.10/1

Annex 3

THALIDOMIDE OF DANGEROUS GOODS
(ST/SG/AC.10/1)

Chapter IV. SPECIAL RECOMMENDATIONS OF PACKING FOR CLASS 1

Amendments adopted by the Committee

Insert the following note after the title "Packing methods for explosives":

"NOTE - While the Recommendations are drafted only and normally worded accordingly, it is considered that certain aspects of packing of explosives are of particular importance. Therefore, while the Recommendations are advisory, the practice of particular recommendations includes such words as "must" and "shall" to give appropriate emphasis where this is necessary".

Insert packing sheets as follows:

Method P 1

Packagings

(a) Outer: Add:

"plastic fabrics (SH1") and (SH2)
plastic films (SH3)"

Method P 2

Packagings Read:

Inner: Receptacles

metal
paper
plastics

Sheets:

plastics

Outer: Barrels:

slack type (2C2)

Boxes:

fibreboard (4G1)
natural wood, ordinary (4C1)

Drums

fibreboard, convolutely wound plies (1G1)
fibreboard, spirally wound plies (1G2)

In addition, for 0219-TRINITRORESORCINOL plastics drums,
removable head (1H2)

Particular packing requirements

1. Water soluble substances should be packed in waterproof receptacles.

2. Packages should be lead free.

Method E 3

Packagings Read:

Inner: Bags

plastics
rubber
textile
textile, rubberized

Sheets

aluminium foil

Intermediate: Bags

plastics
rubber
textile
textile, rubberized

Barrels

plastics
wooden

Outer: Barrels

slack type (2C2)

Drums

plastics (1H2)
steel, removable head, reusable, reinforced chime (1A2A)
steel, removable head, reusable, reinforced chime, with coating
other than lead (1A2B)

Particular packing requirements

1. The barrels and drums may have a second tin liner.

2. The intermediate packaging shall be watertight (that is, the inner packaging must pass).

3. The intermediate and outer packagings must be filled with water or an absorbent inert material (sand, etc.). When the intermediate packaging is a vermiculite-lined fibreboard box,

Method 5.4

Packagings used

(a) Inner: Receptacles

Outer:

(b) Inner:

Outer:

Method 5.5

Packagings

The sentence under "(b) Intermediate" should read:

"Same as for outer packagings except that any fibreboard boxes may be used as inner packaging and any textile bags as intermediate packaging".

Method E 9

Packagings, Inner:

To "Receptacles, vate proof" the word "material" should be added.

Method E 9

Packagings

(a) Inner

To "Receptacles, watertroof" the word "material" should be added.

(b) Inner

"Cans, metal" should be added.

Outer

Add: Read

plastics receive (3H1)[1/]

Note should read:

"The above packing requirements are made in the interest of safety generally. They do not guarantee that blasting explosives, type B, so packed will be classified as shown. Assessment of the hazard in accordance with the appendix to the introduction to this class is essential."

Method E 11

Packagings, Outer:

The following packagings should be added:

"Drums

fibreboard, convolutely wound plies (1G1)
fibreboard, spirally wound plies (1G2)".

Method E 12

Packagings

Inner: Insert above title:

"(a) for explosives, blasting, type B 1.1 B"

1/ If bags 5H1B or 5H1C are used, no inner packaging is necessary.

Delete: [illegible]

"[illegible]

Insert: [illegible]

Delete: [illegible]

Insert: [illegible]

[illegible]

Insert:

"[illegible]

Delete:

[illegible]

Insert:

[illegible]

[illegible]

The following [illegible]

"[illegible]

[illegible] safety [illegible] Type B, or packages which are [illegible] in accordance with the provisions of [illegible] essential."

Method 2 (1)

The following paragraph [illegible]

1/ If bare UF6 or UF6 at more than atmospheric pressure is necessary.

"(a) Wetted

Inner: Bags

plastics

Sheets

plastics

Outer: Barrels

closed type (2C2)

Boxes

fibreboard (4G1)
natural wood, ordinary (4C1)

(b) Dry

Inner: Bags

paper,
plastics

Boxes

fibreboard

Sheets

plastics

Outer: Barrels

closed type (2C2)

Boxes

fibreboard (4G1)
natural wood, ordinary (4C1)"

Method E 19

Packagings, (a) Outer:

The following packaging should be added:

"plastics (1H2)"

Method F 21

Should be revised to read as follows:

Packagings

Inner: Boxes

fibreboard

Outer:

metal

Receptacles

paper, waterproof
plastics, not liable to generate static
electricity by contained substances

Outer: Boxes

natural wood, with proof walls (Dg)

Method F 22

Packagings, (a) Inner:

"plastics" should be added.

Packagings, (b) Outer

The following boxes should be listed in addition:

"fibreboard, convolutely wound plies (4G)
fibreboard, centrally wound plies (4H2)
plywood, removable head (4D)".

Method F 23 (new)

Packagings

(a) Inner:

Boxes

rubber
textile, rubberized
plastics

Outer:

Boxes

fibreboard (4G1)

(b) Inner:

Bags

rubber
textile, rubberized
plastics

Intermediate:

Boxes

rubber
textile, rubberized
plastics

Outer:

Drums

steel removable head, reuseable, reinforced chime with coating other than lead (1A2B)

Method E 103

Packagings, Outer:

The following packagings should be listed in addition:

"Boxes

fibreboard (4G1)

Drums

fibreboard, convolutely wound, alies (1G1)
fibreboard, spirally wound alies (1G2)".

Particular packing requirements:

The first sentence should be deleted.

Method E 103

Should be replaced by:

Packagings

Inner: As specified by the competent national authority.

Outer: As specified by the competent national authority.

Method 6 103A (new)

Packagings

Inner: As specified by the competent national authority.

Outer: As specified by the competent national authority.

Method 6 103

Should be replaced by:

Packagings

Inner: Receptacles

fibreboard
metal

Intermediate: Boxes

fibreboard
wooden

Outer: Boxes

fibreboard (4G1)
natural wood, ordinary (4C1)
steel, with liner (4A2)

Particular packing requirements

1. Not more than 100 blasting caps may be packed in an inner packaging.

2. Intermediate packagings are required if more than 1000 blasting caps are packed in an outer packaging.

3. Not more than 10 inner packagings may be packed in an intermediate packaging.

4. The inner or intermediate packagings must be separated from the outer packaging by a gap of at least 25 mm using spacers (battens) or cushioning material, e.g. sawdust.

5. Blasting caps in metal inner packagings must be secured by cushioning material at both ends.

6. Nails must not be used to secure the lid of wooden packagings.

Note:

The above packing requirements are made in the interest of safety generally. They do not guarantee that non-electric blasting caps so packed will be classified as shown. Assessment of the hazard in accordance with the appendix to the introduction to this class is essential.

Method E 105A (new)

Packagings

Inner: Bags

paper
plastics

Boxes

fibreboard

Receptacles

fibreboard

Outer: Boxes

fibreboard (4G1)
natural wood, ordinary (4C1)
steel, with liner, (4A2)

Particular packing requirements

1. Not more than 1000 blasting cap assemblies with safety fuse or shock tube may be packed in an outer packaging.

2. Not more than 500 blasting cap assemblies with detonating cord may be packed in an outer packaging.

3. Inner packaging is optional at the discretion of the competent national authority.

4. Nails must not be used to secure the lid of wooden packagings.

Method E 110

Should be deleted.

Method 6.1(f)

Packagings, Outer:

"Fiber cartridges of 1, 2, 3" should be deleted.

Method 6.1(g)

Packagings

Inner: "Glass" should be replaced by "receptacles".

Method 6.1(h)

Packagings

Inner: "The only "Glass" should be added.

Method 6.1(i)

Packagings

Inner: "The only for "Glass" is added:

"Glass (fi... small amount)

electric
service"

Outer:

"with liner (ALU)" should be deleted and "(ALU)" should be added behind "steel".

Method 6.1(j)

Packagings

Inner: "Glass

metal" should be added.

Method 6.12A (new)

Packagings

Inner: As specified by the competent national authority.

Outer: As specified by the competent national authority.

Method P 141

Packagings

Inner: "Receptacles

fibreboard" should be added.

Method P 142

Packagings

Inner: The following packagings should be added:

"Cans fitted with dividing partitions
metal"

Particular packing requirements

In paragraph 2 the figure "50" should be replaced by "25".

Method P 143

Particular packing requirements

Paragraph 2 should be deleted.

Methods P 150, P 151 and P 152

Particular packing requirements

Paragraphs 1 and 2 should be deleted and replaced by the following sentence:

"The fireworks must be secured to prevent movement".

Method P 153

Packagings

Inner: "Dividing partitions in the outer packaging" should be added.
"Receptacles, fibreboard" should be added.
"Boxes, fibreboard" should be deleted.

Outer: The following packagings should be listed in addition:

"Boxes

plastics (4H1)

Drums

plastics, removable head (1H2)"

Intermediate: (Optional with inner boxes but mandatory with trays)

Boxes

fibreboard

Outer: Boxes

natural wood, ordinary (4C1)
steel, with liner (4A2)
fibreboard (4G1)

Particular packing requirements

1. Primers fitted with an anvil, composition not covered with a disc of metal foil or other material (varnished only)

   (a) The primers must be packed in rows in single layers in trays of fibreboard or plastics.

   (b) Not more than 100 primers should be packed in an inner packaging.

2. Primers not fitted with an anvil, composition covered: Not more than 3000 primers should be packed in an inner packaging.

3. The primers must be packed with shock absorbent layers of felt, paper or plastic to prevent propagation within the outer packaging.

Note

The particular packing requirements are made in the interest of safety generally. They do not guarantee that primers so packed will be classified as shown. Assessment of the hazard in accordance with the appendix to the introduction to this class is essential.

Method E 153

Particular packing requirements

Paragraph 2 should be deleted.

Method E 154A (new)

Packagings

Inner: As specified by the competent national authority.

Outer: As specified by the competent national authority.

Annex 9

[illegible]

[illegible]

Title should read:

[illegible]

add the following text:

[illegible]

11.29 Organic peroxides [illegible] are [illegible] indicated in column 3 of the list of dangerous goods [illegible].

11.30 The criteria on which [illegible] are [illegible] are as follows:

	Characteristic	Type of test	Acceptance level
1.	Ability to propagate	[illegible]	No propagation
2.	Explosive power	Under conditions of high confinement	Less than 100 of the power of picric acid
3.	Thermal sensitivity	Koenen test	No explosion with an orifice of 1.0 mm
		Dutch pressure Pressure vessel test	No explosion with an orifice of 1.0 mm
		Dutch pressure vessel test	No explosion with an orifice of 3.0 mm
4.	Impact sensitivity	Various	Insensitive
5.	Friction sensitivity	Various	Insensitive
6.	Thermal sensitivity	Self-heating	No self-accelerating decomposition at 55°C in the tank in which it is shipped or a low rate of decomposition with no dangerous self-heating, unless carried under controlled temperature conditions.

11.31 Test methods other than those quoted may be used provided they give equivalent results (for example, suitable intermediate scale tests). Alternatively and particularly where the data are inconclusive, a statistically valid number of full scale trials may be substituted for laboratory tests.

11.32 An organic peroxide which possesses any hazard typical of another class of danger as goods which would in strict its conveyance in bulk if it were considered as a member of that class may not be carried in bulk.

Conveyance of packages in closed vehicles, freight containers and unitized loads

11.33 Where a number of packages are assembled in a single freight container, closed vehicle or unitized load either the total quantity of organic peroxides should not exceed that permitted for bulk conveyance or the type of package, quantity and method of loading should not create an explosion hazard. Where it is not possible to eliminate an explosion hazard from such an aggregate of packages, special conditions may be imposed by the competent authority.

Add to the list of packagings:

P 28 Strong plastics cage individually packed in a 2 l round cardboard carton, four cartons per each outside fibreboard case

Other amendments adopted by the Committee

13.10 Add the following sentence:

"The symbols on the green label for Class 2, on the red label for Class 3 and on the blue label for Division 4.3 may be printed in white".

13.15 End of first sentence should read:

"..... by an indication of the class or division of risk, the United Nations serial number and, if necessary, an internationally recognized code number.".

Figure 13.1 Heading of the fifth column should read:

"Nature of hazard, Class or Division number and United Nations serial number.".

Annex II

TRANSPORT OF DANGEROUS GOODS
(ST/SG/AC.10/11)

Text of Chapter adopted at the session

Chapter 14. IDENTIFICATION SYSTEMS FOR DANGEROUS GOODS (HIS)

14.1 Introduction

The Recommendations for the Transport of Dangerous Goods seek to reduce the impact of accidents by the provision of packaging, handling, labelling and documentation guidelines.

To diminish the impact of such accidents it is recommended that a Hazard Information System (HIS) be used in all modes of transport in all parts of the world.

14.2 Application

HIS is recommended for application, either in whole or in part, throughout the world, to all modes of transport. In the first stages it should be applied to:

(a) solids, liquids or gases transported in the compartments of multiple-compartment tank-vehicles or tank-containers;

(b) solids, liquids or gases transported in single-compartment tank-vehicles or tank-containers;

(c) dangerous goods which may be specified in the list.

14.3 HIS

(a) HIS comprises three elements which individually respond to the needs of three phases of reaction to any emergency. These elements are:

(i) one or more enlarged United Nations labels which serve to warn the general public that a danger is present;

(ii) the HIS abbreviated properties code which, along with explanatory information, provides the basis for the immediate response during the early stages of an incident; and

(iii) the serial number, which also, along with interpretative material, provides the basis for correct long-term control.

(b) The HIS recommended is consistent with other provisions of the Recommendations and does not relieve any person from the obligation of meeting these requirements. The purposes of the latter are:

(i) to classify dangerous goods into danger classes and divisions;

(iii) to specify package labels; and

(iv) to specify the documentation of the consignment.

14.4 The elements of HIS

(a) Placards

(i) The primary and most visible elements of HIS will be two placards, one diamond-shaped and the other rectangular (see paragraph 14.4 (a) and figure 1), which should generally be placed together, side by side, on the transport unit.

(ii) On freight containers and tank-containers the placards should be placed on the four sides; and

(iii) On other transport units the placards should be so placed as to be clearly visible to rescue teams. The exact position shall be determined by the mode of transport concerned.

(b) The abbreviated code

The abbreviated code is a three digit code number comprising the figures 0 to 9; the figure 0 means that there are no further dangerous properties; the figures 1 to 9 represent a generalized set of dangerous properties characterized by the properties included in the classes. The derivation of the abbreviated code, and the nature of the properties represented are shown in paragraphs 14.5(c) and 14.5(d).

(c) The serial number

The serial number is the number assigned to specific dangerous goods in the list given in chapter 2 of the Recommendations.

(d) Method of display

The three elements of the hazard identification system should be displayed in the form illustrated in figure 1, using an enlarged danger label appropriate to the dangerous goods in question:

(i) space 1 should be used for the abbreviated properties code;

(ii) space 2 may for the time being be used at the discretion of the competent authorities for an abbreviated code of measures to be taken; and

(iii) space 3 should be used for the serial number of the dangerous substance.

The digits used for (i) and (iii) should be not less than 7.5 cm high.

The background colour of the rectangular placard should be orange.

Where subsidiary packaging labels are recommended, enlarged reproductions of these labels should be displayed immediately to the right of the primary diamond placard, but without the abbreviated code.

14.5 Derivation of abbreviated code

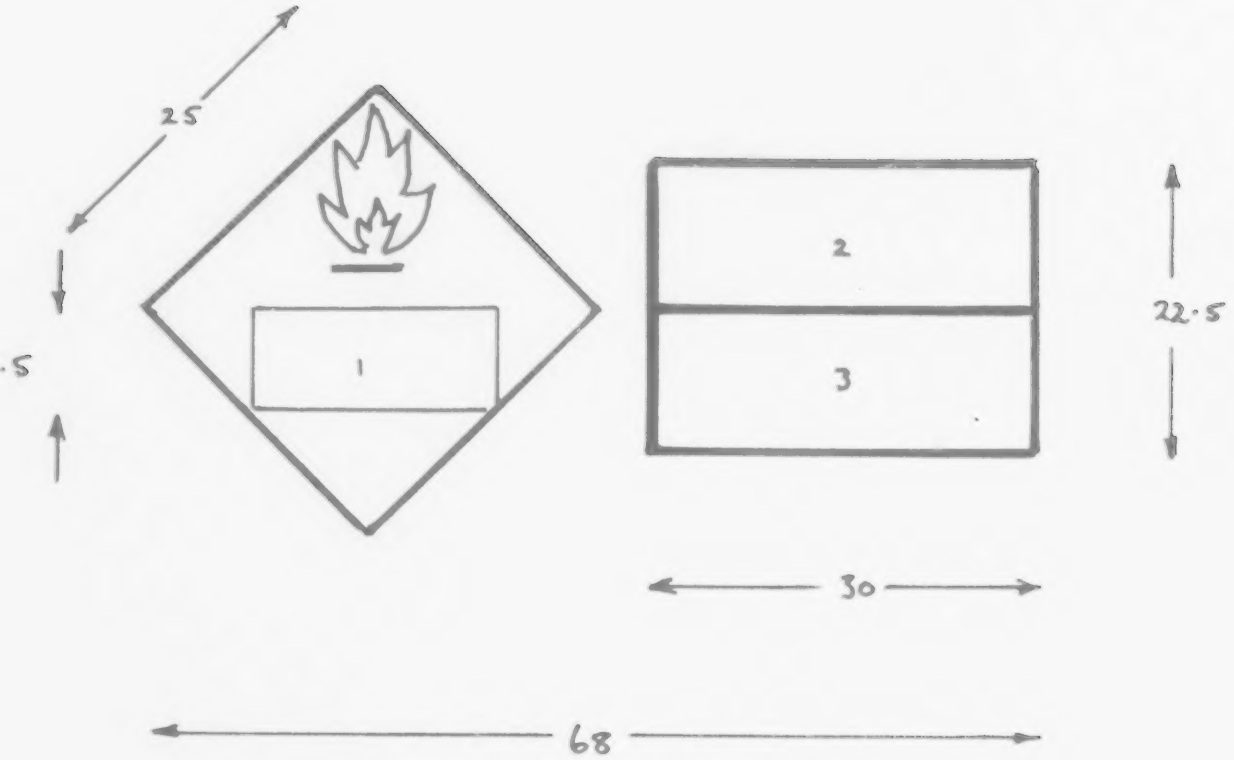
(Publication pending allocation of code numbers to dangerous goods listed in chapter 7)

14.6 Explanatory information

(a) The abbreviated code is interpretable immediately by transport workers and others having a knowledge of the United Nations Classes, their numbers and the danger labels.

(b) Competent authorities may wish to extend the use of the abbreviated code for the purposes outlined in paragraph 14.3(a)(ii). If so, it is recommended that they should draw up, publish and distribute explanatory information relating to the consequences of the properties described and the immediate responses that should be initiated. Guidelines for such explanatory information, for each of the different codes shown in the list of dangerous goods are contained in the second part of this Chapter. Competent authorities should ensure that the wording used and the responses recommended are appropriated to the conditions existing within their jurisdictions.

Figure 1



All units 7.5 cm min

Annex 12

HAZARD INFORMATION SYSTEM (HIS)

Derivation of abbreviated code

Text adopted by the Committee but publication pending allocation of code numbers to dangerous goods listed in Chapter 2.

14.5 Derivation of abbreviated code

(a) The abbreviated code is based generally on the United Nations Class Numbers and the properties of the goods in those Classes. The properties represented by the numbers used in the code are shown in paragraphs (c) and (d).

(b) When an abbreviated code for a substance has not been provided in the List of dangerous goods in the Recommendations, the competent authority may assign a code number according to the following steps:

(c) The principal hazard property is determined by the classification system and the precedence of danger classes and divisions. Substances having the following principal characteristics should be assigned the code number shown:

Principal characteristic	Code
Explosive	1/
Compressed, dissolved or liquefied (inert) gas	200
Refrigerated (inert) gas	220
Inflammable liquids (fp. $\geq$ 23°C) (as in Division 3.2)	300
Inflammable liquids (fp. $<$ 23°C) (as in Division 3.1)	330
Inflammable substances of Class 4 and its Divisions not having the characteristic of Code 410, 42x, or 440	400
Substances of Class 4 which may explode under certain circumstances, for example if dried	410
Substances releasing gases when wet (those of Division 4.3)	42x 2/

1/ Code numbers are as yet to be recommended.

Principal characteristic	Code	
Substances liable to violent spontaneous ignition	330	
Oxidizing substances (both liquid and solid)	500	
Organic peroxides for which temperature control is not required during transport	550	
Organic peroxides that must be transported under controlled temperature	555	
Poisonous substances, toxic by ingestion only	600	
Poisonous substances, toxic by inhalation or dermal exposure and lachrymatory substances	660	
Radioactive substances for which type A packaging is not required	700	3/
Radioactive substances for which type B(U) packaging is required	710	3/
Radioactive substances for which type B(M) packaging is required	777	3/
Corrosives, solid	800	
Corrosives, liquid	880	
Corrosives with extreme heat of dilution	808	

(j) If the substance possesses dangerous properties other than its principal dangerous characteristic as described in paragraph (a), then, in accordance with the precedence of dangers in the Recommendations, any "0s" in the Code derived in the first instance should be replaced with digits chosen appropriately from the following characteristics:

Subsidiary characteristic	Code digit
Thermal instability, self reactivity	1
Inflammability of liquid or vapour state	3
Inflammability (for solid substances)	4

3/ The proposed recommended codes for radioactive materials is to be confirmed by the International Atomic Energy Agency prior to being recommended to the United Nations Economic and Social Council.

Subsidiary characteristic	Code digit
Oxidizing properties	1
Toxic properties	2
Corrosive properties	8
Miscellaneous dangerous properties (with the special case that if this digit appears as either the second or third digit of the codes 3xx or as the third digit of 33x, it means immiscible with water)	9

Annex 13

INFORMATION SHEET FOR NEW SUBSTANCES TO BE
ENTERED IN THE CENTRAL MASTER LIST

Agreed by the Committee

The following information is required where applicable (tick appropriate box) and submitted to the Commission:

CHEMICAL NAME: _____

OTHER NAMES (if any): _____

CHEMICAL FORMULA: _____

PHYSICAL STATE: Describe appearance at standard conditions:

.....

.....

TRADING CLASSIFICATION - NAME: _____ CODE: _____

FLASH POINT: _____ °C _____ °F ☐ Open Cup ☐ Closed Cup

_____ Ref.

Melting point: _____ °C _____ °F ☐ N.T. applicable

Boiling point: _____ °C _____ °F ☐ N.T. applicable

Vapour pressure at 20°C: _____

Specific density at 3/20°C: _____

Stability: (a) heat _____

(b) acids: _____

(c) hydrolysis _____

Skin exposure: (using hands and overalls)

Test used .....

.....

Results .....

.....

Oxidizer: ☐ Strong ☐ Medium ☐ Weak

Self-reactive or susceptible: ☐ Yes ☐ No

If yes, explain .....

Sensitivity to shock _____ ms⁻¹ (1 kg/cm²) at _____ °C.

Sensitivity _____ ms⁻¹ (1 kg/cm²) at _____ °C.

Acute toxicity:

Toxicity:	Rat	Mouse	Guinea Pig
Oral	_____	_____	_____
Percutaneous	_____	_____	_____
LC50	_____	_____	_____
LD50	_____	_____	_____

Skin exposure:

Ancillary comments _____

_____

_____